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American Housing Competition Award of Prizes

The American Housing Competition, inaugurated by the Journal of the American Institute of Architects and the Ladies' Home Journal, has been judged by the Jury and on May 6 two second prizes of Five Hundred Dollars each were awarded to:

Milo Hastings, New York City
Robert Anderson Pope, New York City

In making this award of two second prizes, the Jury was governed by the fact that, while the theses submitted, in both cases, offer a thorough analysis of the causes and cure for the housing problem as it now exists in the United States, the physical plans submitted did not fully provide for the application of the principles set forth in the theses. It was therefore decided to award two second prizes, since the Jury was unwilling to make a discrimination between the theses of Mr. Hastings and Mr. Pope. Of the other twenty-nine submissions, those of merit contained analyses and solutions which largely coincided in principle with those to which the two second prizes were awarded, but failed in quality of presentation.

The two theses will be published in the Journal in the June and July numbers.

The competition has involved a most arduous duty on the part of the Jurors, each of whom was called upon to read and weigh carefully the thirty-one manuscripts and then to consider the drawings submitted as in support of the theses. The Journal takes this opportunity to express its gratitude to the Jurors, who were as follows: Louis F. Post, Assistant Secretary of Labor, Washington, D. C.; Herbert Quick, Farm Loan Board, Washington, D. C.; Thomas Adams, Town Planning Advisor to the Commission of Conservation, Ottawa; Lawson Purdy, Charity Organization Society, New York City; Mrs. Edith Elmer Wood, Philadelphia; Frederick L. Ackerman, Architect, New York City; Milton B. Medary, Jr., Architect, Philadelphia; *James Sullivan, American Federation of Labor, Washington, D. C.; Thomas R. Kimball, President of the American Institute of Architects, Chairman, Omaha.

It will be remembered that the competition called for the submission of two theses, one on the social purpose which should govern any attempt to solve the housing problem, and one on the economic method of achieving that purpose. The winning solutions will be offered to the people of the United States as contributions which attack the problem fundamentally, both as to cause and cure, and relate it to our whole social and industrial organization.

*Absent in Europe and did not participate in the judgment.

The Fifty-second Annual Convention

THE Fifty-second Annual Convention of the Institute was held in Nashville, Tenn., on the 30th of April and the 1st and 2d of May last. Thanks to the generous courtesy of the Governor of Tennessee, the Hall of Representatives was made available for the sessions. A portrait of William Strickland, the architect of the Capitol building, hung behind the speaker's chair, and served to remind those present of the brief period of the Institute's existence, in comparison with our architectural records, for Strickland died in 1854, three years before the Institute was founded.

No sessions within the memory of the writer were so well attended as those of this Convention. Most of them were given over to a discussion of the work of the Post-War Committee and were related to subjects which, on the face of them, might well seem not only dry, but outworn, so long have they been before the members of the Institute. On the other hand, it was apparent that the delegates to the Convention had come with an earnestness of purpose amounting at times to a nervous intensity. The first session revealed this very clearly. It developed a critical attitude unusual in character. Nothing connected with the profession or the Institute was allowed to pass or suffered to escape. An outsider might well have felt that he was attending a rather mournful requiem, and that the profession of architecture had found itself guilty of so many sins, both of omission and commission, that the time had come for a funeral service.

As the sessions of the Convention progressed, the whole spirit changed. The intense earnestness manifest at the beginning was maintained throughout all the sessions, but quickly transformed from the hyper-critically destructive to the critically constructive basis.

The sessions of the Post-War Committee seemed to increase in interest. As time wore on, it became evident to all those in attendance that the character of this particular Convention was remarkable in cohesion of purpose. There were widely differing opinions on all subjects, even concerning the question of whether the architectural profession required to be analyzed and studied, but the majority of opinion was clearly registered when, by a vote that was apparently unanimous, the Convention approved the work and purposes of the Post-War Committee, directed it to continue at its task, and, by a two-thirds vote, authorized an appropriation for its use, not to exceed $10,000, the amount to be borrowed from the Reserve Fund. While there was opposition to the principle of borrowing from the Reserve Fund for such a purpose, comment by the speakers in opposition indicated approval of the Post-War Committee.

Were one to try accurately to characterize this Convention as distinguished from preceding ones, one undoubtedly would find the basis for difference in the effect which the war has produced upon the minds of men. The very intensity of the first session was clearly a reflection of the fact that never before within the period of a year's time had the members of the architectural profession been thinking so deeply and so seriously. If there were some who had escaped the impact of a world disorder and who felt that everything would soon settle down so that life might resume its old customs and ways, they were a minority too small to make any impression. The spirit of the Convention was clearly that born of a resolve to improve and of a demand that means and methods be instituted through organized and coöperative effort to the end that architecture might play a better and a larger part in the needs and in the service of mankind.

It is only possible, at this moment, to sum up briefly the major notes that were struck at this Convention. On this subject opinions will vary according to the interests of those who listened to the discussion. To the writer it seemed that the address of the President, together with his remarks at the opening session of the Post-War Committee, were two fine variations of a great theme. Another was the happy and spontaneous address of Mr. Magonigle on the subject of education.

Of quite a different character, yet perhaps possessing a significance no less profound, was the report of the Committee on Jurisdictional Disputes. Here is held out the almost certain

promise that a way has been found for putting an end to the costly delays of such disagreements.

The address of Mr. John Bell Keeble, of the Tennessee bar, was perhaps the most memorable event of the whole Convention, and, to my mind, the most remarkable address at any Convention that I have attended. It swept like a great harmonious piece of orchestration over the whole scale of the professional relation, a scale built up through the silent, patient, and mostly obscure devotion of men who have worked in all callings and through all ages, true servants and faithful disciples of the professional idea.

But all of the sessions were characterized by discussions and addresses of an unusually high order, and the Proceedings of the Convention will offer a record of such interest that we venture to hope that all of the discussion at the sessions devoted to the Post-War Committee will this year be made available to all the architects of the United States, as a part of the contribution of the Post-War Committee, and as a means of diffusing information and stimulating interest.

At this moment it is only possible to record the principal actions of the Convention as affecting the organization of the Institute and its work. The full story can only be told in the Proceedings although we hope to publish further supplementary particulars in the June issue of the Journal.

The President's Address

The President's address at the opening of the Convention was devoted to the question of the professional idea, when he spoke, in part, as follows:

On every side we meet the word "professional." It crops up in most unexpected and unaccountable places, and strange associations. In the circular of our Post-War Committee we find it used in connection with and to define a recently assumed attitude of the contractor toward his work, wherein, under the guise of a growing professional tendency, he seeks to disguise a desire to shirk old and irksome responsibilities. Almost over night our friends, the brokers in real estate, have put on, together with a general clean-up and new paint, the title "Realtor" and a claim to complete graduation into the class professional. I call this a sign of the times, and a distinctly unpromising one—one I attribute to those among us who, for the sake of a theory more Utopian than professional, would have us believe that commerce itself is in line to take on the garb of unselfish service, in spite of the margin of profit for which it exists.

I would sound a warning against the tendency for which this post-war sign seems to stand. If professionalism is to be protected from such exploitation—indeed if it is to endure—I believe its disciples must awake to this and the other menaces of the all-absorbing commercial tidal wave that seems to be upon us, and which, if history really does repeat, should warn us of that never-failing visitation of force which is the only answer when the selfish control of the necessities of life reaches high-water mark.

It is a pet fancy that it might pay to oppose the commercial menace through organization of the one thing that has never yet been organized, the one thing that by reason of its essential character is, and always must be, absolutely non-commercial—I mean Simon-pure professionalism.

Why not gather for this defense all those callings where skilled service unselfishly rendered to others is the qualifying requisite—not so small an array when you realize that standing up to be shot at for one's country at $30 per month qualifies and that khaki is the hallmark of preparation and skill?

Those versed in figures told us, some years ago, that by virtue of the sleeplessness of interest, the money (78 per cent of all there is) at that time in the hands of 1 per cent of the people —would draw to itself the remaining 22 per cent within fifteen years, of which some six years have already passed. This money means bread, and when all of it has come under the control of 1 per cent of those to whom bread means life, is it unreasonable to look for one of those sanguine outbreaks of force that have, I believe, always resulted under those conditions since history began to be written? It is the thought of this which makes it seem worth while to try to oppose organized selfishness by unionizing for that purpose the one thing that has, I believe, never yet submitted to the fetters of organization,

I offer this as a post-Convention thought, and, really, I ask you, is it such an impossible idea that the combined intelligence which the professions represent might, acting together, parallel and in one and the same direction, result in a power worthy to be pitted against any human force—yes, even this one that constitutes the menace from which the world trembles today?

In order that we may have a worthy part in such an effort, or, for that matter, in any other post-war destiny that may include architects, I submit that we should no longer be satisfied with a membership that barely reaches 10 per cent of those who practise the calling we profess.

Recent correspondence with some thirty professional organizations supports my belief in the possibility of a brotherhood or league of professions by the show of keen interest in the subject and a readiness to join in its further consideration.

A careful survey of the situation leads me to feel certain that a bigger and a better Institute is immediately attainable.

Moreover, I am confident that architecture—the Art, I mean—can never come into its own until some way has been found to make it easier for the young man in the profession to earn an honest living. Surely he cannot hope to contribute much to art while 90 per cent of his time and energy is required to keep the wolf from the door.

A league of professions, an Institute really national in size and scope, and a vigorously and fully supported Post-War Committee on Architectural Practice—each offers possibilities. For the first I ask your post-Convention interest; for the second, the greater Institute, your help; and for the Post-War Committee I bespeak your most generous and unqualified support.

Convention Actions

Delegates' Expenses. The Board was instructed to apply some method for the equalizing of the delegates' expenses to all future conventions.

Dues. The initiation fee of new members was reduced to $20. The dues of fellows and members were made equal, at $20, the Convention declining to give the Board of Directors that authority to reduce the dues for which it had asked in its report.

Endowment Fund. The Board of Directors was instructed to prepare a plan for an Endowment Fund, the principal of which shall remain inviolate and the income of which shall be devoted to the maintenance of the Octagon property.

Farm Home Improvement. The Board of Directors was instructed to give all possible assistance to the movement for farm home improvement, a work which has been greatly stimulated by the Minnesota and Illinois Chapters.

Circular of Advice and Canon of Ethics. A suggested revision of the Circular of Advice and the Canon of Ethics, as prepared by the Illinois Chapter, was referred to the Board for its consideration.

State Societies. The Board was directed to encourage the formation of state societies and to invite their representatives to the annual Convention of the Institute, and to request the chapters of the Institute to coöperate with such state societies and with other local societies engaged in the promotion of the arts and industries.

Education. The Committee on Education was directed to give every possible assistance in the movement for cultural instruction in architecture in American colleges as inaugurated by the Association of American Colleges, a work which has already been developed by the Illinois Chapter, and the need of which has long been emphasized by the Institute.

The Convention resolved that the Committee on Education of the Institute coöperate with the Association of Architectural Schools for the purpose of defining requisite preparation for architectural practice and of suggesting changes looking toward improvement in prevailing school methods.

Post-War Committee. The Convention unanimously voted that the Post-War Committee should continue its work, and by a two-thirds vote that funds for this purpose, not to exceed $10,000, should be borrowed from the Reserve Fund.

Public Information. The Committee on Public Information was joined with the Committee on Institute Publications under the title of Committee on Institute Publications and Public Information.

The Journal. The Committee on Institute Publications was instructed to amplify, as far as possible, the publication of Chapter and Institute activities. The Board of Directors was instructed to consider the question of incorporating the Journal and of providing it with capital for the extension and further development of its field.

Small House Committee. The Board was directed to create a Small House Committee, which should investigate the possibilities of helping to provide better houses of the small type, such as generally do not come within the architect's range.

"Handbook on Architectural Practice." The Board of Directors was urged to publish, as soon as possible, the "Handbook on Architectural Practice" already authorized and which had been nearly completed by the late Frank Miles Day.

School Building Classifications. The Board of Directors was authorized to approve a scheme for classification and measurement of school buildings in accordance with the report submitted by the Committee on School Building Measurements and when in a form satisfactory

to the Board, and of recommending its use to architects as a helpful compilation of data concerning details of construction costs.

Department of Public Works. The Board of Directors was instructed to coöperate in every way possible toward the establishment of a National Department of Public Works.

Registration Laws. The Committee on Education and the Committee on Registration Laws were instructed to consider jointly and report to the next Convention, a proper standard of competency for those admitted to practice under the name of architects, and a method of determining its fulfillment in individual cases. The Convention resolved that each Chapter be urged to take an active interest in regulation by state legislation of the practice of architecture.

The Board approved the Model Registration Law compiled by the Committee on Registration Laws, and it is now offered as a model for the guidance of all Chapters seeking the enactment of registration legislation.

The Convention resolved that, in states where an architect's registration law was being sought, engineers should also be urged to secure an independent registration law at the same time in order that all conflicts and misunderstandings between the two professions might be avoided before the enactment of legislation. The Convention opposed the principle of a joint registration law for the two professions.

Admission to Membership. The Convention amended the By-laws in respect to qualifications for admission to membership by removing the age limit for draughtsmen, which heretofore was "over thirty years of age." There has never been any age limitation for architects, and by this action of the Convention there is now no age limitation for draughtsmen.

Building Committee. The Convention merged the House Committee with the Building Committee because of the parallel nature of their duties.

Structural Service Committee. The Convention added the Structural Service Committee to the list of standing committees, as proposed by the Board.

National Victory Memorial Park and Forest. The Convention resolved: That the American Institute of Architects, in convention assembled, favors the establishment of a National Victory Memorial Park and Forest, as referred to in the report of the Committee on the Preservation of Historic Monuments and Scenic Beauties, and hereby requests the United States Department of the Interior to investigate the possibilities of creating such a park and forest within the great unproductive area lying between the District of Columbia, Annapolis, and Baltimore, to the furtherance of which project the American Institute of Architects has pledged its encouragement and such assistance as lies within its power and province to render.

Advertising. The Committee on Advertising, obedient to the Instructions of the Fifty-first Convention, prepared a revision of Articles 12 and 13 of the Circular of Advice, which was approved by the Board of Directors, and which is as follows:

Art. 12. "Publicity of the standards, aims, and progress of the profession, both in general and as exemplified by individual achievement is essential. Advertising of the individual, meaning self-laudatory publicity procured by the person advertised, or with his consent, tends to defeat its own ends as to the individual, as well as to lower the dignity of the profession, and is to be deplored.

Art. 13. "The unobtrusive signature of buildings after completion is desirable.

"The placing of the architect's name on a building during construction serves a legitimate purpose for public information, but is to be deplored if done obtrusively for individual publicity.

"The use of initials designating membership in the Institute is desirable in all professional relationships, in order to promote a general understanding of the Institute and its standards through a knowledge of its members and their professional activities.

"Upon the members devolves the responsibility to associate the symbols of the Institute with acts representative of the highest standards of professional practice."

The Convention again referred both articles, together with the remainder of the Circular to the Board for further study.

Housing Conference. The Convention recommended to the Board of Directors that it take action looking toward a national conference on housing under the auspices of some department of the Federal Government.

Jurisdictional Disputes. The Convention adopted the resolution as offered by the Board, which approved the plan of the National Board of Jurisdictional Awards, as outlined in the report of the Committee on Jurisdictional Disputes. This action of the Convention, when the Board has signed the final agreement, will place every member of the Institute under a definite obligation to write his specifications in accordance with the decisions of the National Board of Jurisdictional Awards, which decisions will be binding upon all members of the various organizations composing that body. Failure to comply will render a member of the Institute liable to suspension. No doubt the Board of Directors will issue a complete circular on this subject, so that members may be duly advised of their rights and responsibilities. (See Convention Notes, p. 197.)

Gratuitous Expert Service. The Convention resolved: That securing gratuitous expert service from contractors or material men in connection with the preparation of plans and specifications is contrary to the spirit of the Circular of Advice, is contrary to the best interests of the owner, belittles the profession in the eyes of the building world, and cannot be too strongly condemned. Every individual architect should not only refrain from such practice, but take every opportunity to discourage the practice by others.

Co-operation with French Architects. The Convention adopted a resolution requesting the Board of Directors to welcome the Commission of French Architects on its arrival in this country and to coöperate in every way possible toward the solution of the gigantic problem with which the architectural profession of France is faced.

[NOTE.—The President of the Institute has been informally advised that in response to the Institute's inquiry, addressed to the architectural societies of France, as to how the architects of America could best assist their

French confrères, the High Commission of France has arranged to send six representatives to this country for the purpose of taking up the problem through personal conferences.]

A New Institute Medal. The Convention authorized a new medal to be bestowed annually in recognition of meritorious work in the fine arts, to embrace painting, sculpture, music, literature, as well as the crafts now recognized in making the award of the Institute Medal for Craftsmanship.

Convention Notes

The Convention was opened with an address by His Honor, William Gupton, Mayor of Nashville, who paid a glowing tribute to the work of the profession.

The Committee on Credentials reported that out of a full quota of delegates certified to the Convention and numbering 213, there were present 113, with 32 proxies.

The Nashville Society of Architects entertained the Convention at a barbecue at The Hermitage, preceded by an extensive motor drive through the charming pastoral countryside about the city. Fortunately, the day selected for this event proved to be perfection itself. Preceding the *al fresco* dinner, the party rambled through the extensive grounds of The Hermitage and explored the house itself. The gardens were especially beautiful and the hours spent at the one-time home of Andrew Jackson will be counted among the most pleasurable of Convention events. After the dinner, the party was entertained by a quartet of the Fisk University singers. The return to Nashville was by way of the famous powder plant at Old Hickory. Certainly the architects of Nashville will be gratefully remembered for their hospitality.

On the afternoon of the first day, the Convention adjourned at an early hour in order to permit the delegates to attend a reception which had been arranged by the Nashville Art Society at the Parthenon, where there had also been assembled an exhibition of paintings and other *objets d'art*. There were several brief and informal addresses by the President of the Institute and members of the Society, whose gracious welcome was much appreciated by the delegates to the Convention.

The officers elected for the ensuing year are as follows:

President, Thomas R. Kimball
First Vice-President, Charles A. Favrot
Second Vice-President, Clarence C. Zantzinger
Secretary, William Stanley Parker
Treasurer, D. Everett Waid
Directors for three years:
Edwin H. Hewitt, of Minneapolis
William B. Ittner, of St. Louis
Henry H. Kendall, of Boston

Members of the Institute elected to fellowship were as follows:

Elliston P. Bissell, Philadelphia, presented to the Convention by C. C. Zantzinger.

N. Max Dunning, Chicago, presented to the Convention by J. C. Llewellyn.

William Emerson, New York City, presented to the Convention by Egerton Swartwout.

Robert D. Farquhar, Los Angeles, presented to the Convention by W. B. Faville.

Walter H. Kilham, Boston, presented to the Convention by H. H. Kendall.

Joseph C. Llewellyn, Chicago, presented to the Convention by George B. Maher.

Henry McGoodwin, Philadelphia, presented to the Convention by Frederic Bigger.

W. S. Richardson, New York City, presented to the Convention by William A. Boring.

Honorary Corresponding Member:

M. Jean-Paul Alaux, Paris, France, was elected as an honorary corresponding member, his name being presented to the Convention by William Emerson.

Membership. The total membership of the Institute on April 15, 1919, was as follows:

Fellows	292
Members	1,089
Honorary Members	83
Honorary Corresponding Members	35
A total of	1,499

An Appreciation from the American Federation of Labor. The Convention received the following telegram, in connection with the adoption of the plan for settling Jurisdictional Disputes. Particulars of the plan, as adopted by the Convention, will be published later:

WASHINGTON, D. C., April 29

AMERICAN INSTITUTE OF ARCHITECTS IN CONVENTION,
Nashville, Tenn.

The Building Trades Department of the American Federation of Labor extends greetings and good wishes. This Department is grateful for the kind indulgence of Mr. Russell and others toward building trades. Hope your association will aid in consummating the plan which is tentatively adopted. Let us hope that it will be a powerful and practical influence toward which we strive. Again extending good wishes.

JOHN DONLIN, *President Building Trades Department*
WM. J. SPENCER, *Secretary Building Trades Department*

Architects and Government Housing. The Convention authorized the following telegram to be sent:

LEROY K. SHERMAN, President,
United States Housing Corporation,
613 G Street, N. W., Washington, D. C.

The American Institute of Architects in Convention assembled has been informed that the U. S. Housing Corporation in its forthcoming report proposes to omit from published designs the names of their authors.

The members of the engineering landscape and the architectural professions of this country served the Government unselfishly and patriotically during the war. The Institute respectfully but firmly maintains that the slight recognition which would be accorded them by the publication of authors' names is their just due and is a matter of interest to the public.

WILLIAM STANLEY PARKER, *Secretary*.

In reply to the above telegram, the following was received:

"The matter of names on designs of Housing Corporation report had received final action prior to your message of May first. L. K. SHERMAN."

The architectural profession will appreciate the action of the President of the Housing Corporation in deciding to publish the names of the authors of the designs in connection with the illustrated report now in preparation, which action had been taken prior to the action of the Convention.

Items from the Report of the Board of Directors. *Finances.*—The financial condition of the Institute during the war was better than reasonably could have been anticipated, and there is every reason for optimism as to the future.

All obligations have been met, with a good bank balance always in hand; our property is free and clear; there is no floating indebtedness, except in connection with the Journal; and our Reserve Fund has grown, never less than $3,500 per year since 1914, until the Fund stands now at a total of over $31,000.

Dues actually received were as follows:

1916	$25,090 00
1917	25,475 00
1918	22,867 00

These show a falling off of $2,600 in 1918, as compared with 1916, but things are looking brighter, already, in 1919. Whereas dues collected during the first three months of 1918 were $13,525, during the first three months of 1919 they were $16,560, an increase of $3,000 over last year.

Our loss of revenue resulting from remitting dues of members in war service was as follows:

1917	$1,645 00
1918	695 00

The Octagon House.—Fortunately, the threatened use of the Octagon property as a site for a temporary Government office building was averted through the Government finding other quarters available. The Octagon itself, however, did a certain war service through the free use of the drawing-room for a considerable period by the Navy and then by the War Department. The Board recognizes with satisfaction the expenditures of the past year on upkeep and feels the importance of constant attention to the fabric of The Octagon, so that it may be kept in an honorable state of repair. The Board hopes that before the next Convention the times may be favorable to definite progress toward the establishment of a McKim Memorial, as planned at the Fifty-first Convention in Minneapolis. To that end it advises the continuation of the committee and the revival of its activities at the first opportunity.

Structural Service.—The Board recognizes the great scope that exists for the activities of the Structural Service Committee, but believes it unwise for the Board in this Convention to attempt to determine a definite course of action until after the Committee itself has come to a fixed opinion in the matter. It believes the Committee should inaugurate the work prescribed for it by the Fifty-first Convention, and advises that it be left with these instructions unchanged until such time as it is ready to advise more specific instructions, looking to definite activities along some of its possible lines of effort, which must obviously be limited for the present by the expenditures that our general finances will permit for this purpose.

Jurisdictional Disputes.—In November the Board resolved that the President appoint a committee to cooperate with the organizations representing the labor interests with reference to subjects of common interest, and to report back to the Executive Committee for instructions. After preliminary conference with the Executive Council of the Building Trades Department of the A. F. of L., the Committee, at the request of the Council and with the approval of the President of the Institute, called a conference on the subject, which was held in Cleveland, March 30, at which were present representatives of the Department of Labor, general contractors, the Building Trades Department, and your Committee representing its Institute.

At this conference, John D. Lennon, representing the Department of Labor, presented a plan for consideration. This was amended and issued to the national organization intended for criticism and further consideration at a meeting in Indianapolis, April 4, at which time the Engineering Council also was represented. A plan for a National Board of Jurisdictional Awards in the Building Industry was adopted at this meeting, for submission to the various organizations interested, and has been submitted by your Committee to the Board of Directors, and the Board refers it to the Convention for action. It is of no little interest and significance that the labor and contracting interests looked to the Institute for guiding action in the matter, and the Board believes that definite action should be taken by this Convention, approving the plan as outlined. [This action was taken. See Convention Actions, p. 195.]

Government Relations.—At the last Convention there was just beginning to dawn the day in which the architects would be given opportunity to serve the Government in their professional capacity. The great housing programme was just getting under way. Many fundamental policies were then as yet undetermined. Now, a short twelve-month later, the big accomplishments that you all are familiar with have passed into history, and, except for the cause, we could well regret that so many vast conceptions were prevented from being completed and so adding greatly to our sum of knowledge.

The Institute gave of its best to the cause, and the profession grasped eagerly at the opportunities for service, however humble or harassing. In the two great Government departments that controlled this work, 129 architects, draughtsmen, and town planners were employed. In addition to these staff organizations there were some hundred architects engaged by them on the different projects, and under them a small army of assistants labored. Herein the profession rendered its substantial service.

In addition, the Executive Secretary was able on several occasions to bring the resources of the profession quickly to the assistance of the Government. Major Tracy's recently published letter is witness to the aid rendered in recruiting for the Camouflage Section of the American Army, and many individual members of the Institute have been materially assisted by the Executive Secretary in their efforts to obtain information or secure appointments. The Board is glad to take this opportunity

of recording its appreciation of the able and untiring efforts of Mr. Kemper in the service of the Institute and its members throughout the period of the war, which has put so many unaccustomed burdens on the office at the Octagon House.

Education.—In commenting upon the report of the Committee on Education, published in the April Journal, the Board said: The Board entirely agrees that the development of the practical, as opposed to the purely esthetic side of architecture, is too often neglected by the practitioner. The Board, however, does not believe that the teachers of architecture have taught that the practice of architecture is a cultural activity, completely removed from the affairs which concern the mass of people, nor that design was taught without any contact, whatsoever, with the world of reality.

It feels, however, that there is need to draw a careful line between those facts which can best be learned in the field and those which must be taught in the school, where the student may reasonably learn the vocabulary of the profession and gain a background against which to judge his modern world and the problems it sets him to solve. That he must know his modern world in order to solve its problems is axiomatic. Do the schools of architecture deny this or fail to endeavor, each in its own degree, to lead the students' minds to an appreciation of this axiom. The Board notices among the different schools differing accents on the elements of training, and in all the schools an adjustment from year to year in the curriculum to meet the newer tendencies that have been so rapidly developing in the practice of architecture during the past quarter century. The Board cannot but feel that in a continuance of this evolutionary process lies the answer to our problems rather than in a revolution of all that now exists in general and vocational education. It hopes that there will be the fullest possible discussion of this vital question.

Chapters. The Board has much pleasure in reporting the establishment of a new Chapter in Nebraska, for which the charter was recently issued. Already the Chapter has made its influence felt in municipal architectural affairs, and the Institute is distinctly strengthened in its power for good through the incorporation of this new Chapter.

The Board is also particularly happy in reporting its authorization of a new Chapter, to be known as the Tennessee Chapter, having the state of Tennessee as its territory.

The Secretary is still engaged with the approval of revised Chapter Constitution and By-laws. In view of the fact that the standard form for Chapter By-laws was distributed in the fall of 1917, it seems proper at this time to record the facts. Twenty-two have been finally approved. Eight have been submitted, but not yet fully approved on account of needed corrections. Nine have not yet submitted drafts, in spite of repeated requests, although one or two of these promise action immediately after this Convention. The Board urges these Chapters to act in this matter at once.

Allied Arts. The Committee on Allied Arts has nominated Samuel Yellin, of Philadelphia, as recipient of the Institute Medal for notable work in the wrought iron craft of the allied arts, and the Board approves the nomination and presents it to the Convention for ratification. The award will be witness to his exceptional craftsmanship, his ability as a designer, his success as an instructor, and his keen interest in the general field of architecture.

The Committee suggests the desirability of bestowing, in subsequent years, a similar medal for distinguished service in the fine arts, so as to embrace painting, sculpture, music, and literature, as well as the craft now recognized by the present medal. The Board refers this to the Convention for action, with its approval. The Board advises the continuation of its Committee.

Tennessee Chapter. At the meeting of the Board of Directors, just previous to the Convention, the Tennessee Chapter was admitted to the Institute.

Historic Monuments. The Convention approved the suggestion of the Board that all Chapters shall take steps without delay, looking to the development of permanent records of local historic monuments. The Secretary will no doubt, in compliance with this action, request all Chapters to appoint active committees for the purpose.

The Institute Medal for Craftsmanship. The Convention awarded the Institute Medal for Craftsmanship to Mr. Samuel Yellin, of Philadelphia, in recognition of his notable work in wrought iron, and in witness to his exceptional craftsmanship, his ability as a designer, his success as an instructor, and his keen interest in the general field of architecture.

Meetings of the Board of Directors. On the two days preceding the Convention the Board of Directors met to consider their report and the reports of committees. Immediately after the Convention, the Board held another meeting to consider the appointment of committees for 1919–20. It is hoped to announce the personnel of these committees in the June issue of the Journal.

New Members Elected. At the meeting of the Board of Directors at Nashville, as recorded above, the following were elected to membership in the Institute: Arthur C. Yost, Cleveland Chapter; John Archibald Armstrong, Arthur C. Buckett, Frederick Johnck, Louis E. Languille, Merritt J. Morehouse, William Jones Smith, Illinois Chapter; William Gordon, Kansas City Chapter; Albert Gardner Wood, Jr., Michigan Chapter; Clarence E. Dobbin, Francis Y. Joannes, Stephen Francis Voorhees, New York Chapter; R. Brognard Okie, Philadelphia Chapter; W. George Eckles, Pittsburgh Chapter; William Douden, South Pennsylvania Chapter; William Callis West, Virginia Chapter; Max W. Schober, Wisconsin Chapter; Carl Siebrand, J. R. Nevins, Ernest R. Williams, Joseph Wade Wilson, F. Stanley Piper, Washington State Chapter.

The Professional Idea*

By JOHN BELL KEEBLE

IT is a pretty difficult thing to define what it is that justifies any group of men in claiming to be the exponents of a profession. It is not now a fixed definition, nor has it been, and I am not going to undertake to define it. I belong to a profession that is generally recognized as being one of the professions, and you are members of a profession in the real and the best sense. Indeed, I note that your profession embraces a certain quality which gives it just a little bit more tone in a certain way, because you are the one profession, so far as I know, or as I understand the word "profession," that combines the real qualities of a profession with the real qualities of art; that makes it just a trifle more refined, and puts a double burden upon you in living up to it.

The lawyer is a professional man, but there is no art in my profession; the surgeon is a professional man, and there is skill in his profession, but no art. And so I might recount the characteristics of other professions, but the architect is a professional man with all the distinctive traits that determine whether or not a man belongs to a profession with the glow of the beautiful of art.

Now, there are certain definite things that we know about the professional life by which we judge it. And in discussing that, we must remember that professional men ought, not only in their own lives to demonstrate these fundamental principles that are determinative of all classification of professions, but to stimulate in others the development of those qualities. And one of the first things is this—that it is generally regarded as necessary for a professional man to have more or less general culture. A man can build a railroad without culture, in the sense of a financier; he can finance a railroad, or he can operate a railroad without culture; a man can establish a great bank or a great financial system without culture. But it is a very difficult thing for a man to be a real architect, or a real lawyer, or a real physician, or a minister of religion, without general culture, either acquired in his youth or acquired in his maturity, alone, and under greater obstacles.

*Part of an address delivered at the Fifty-second Annual Convention.

I am not one of those men who believe that culture is only obtained in a college. In fact, the modern college does not turn out as many cultured men as I would like to see it turn out. It has gone most too far in the showy and in that physical indulgence of youth in athletics and pleasures which attract the attention of the commonplace in the world. This perhaps stimulates gifts, but does not, in my judgment, sufficiently stimulate culture. We take pride in our callings, in that we recognize that you and I and those who come after us in our professions can never reach the real standard that we sought without giving a great deal of attention to the acquisition of general culture.

We know, further, that one of the distinctive qualifications of a professional man is that a man must, as far as he may, master the fundamental principles that govern and control the work of his profession, in order to achieve real success. Any achievement in any profession, with a disregard to the sound and fundamental principles that lie at the bottom of its real usefulness, is a false achievement and not creditable to the profession that adopts it. Consequently, you, and other men in their professions, realize that one of the distinctive features of the professional idea is that a man must spend all these years in preparation, and continue in his preparation as he goes on with his work, to master the fundamental principles of what might be called the science of his calling. Your calling and my calling do not go by haphazard; they do not rest upon the inspiration of genius alone, but upon talent and genius manifesting themselves through the mastery of the inheritance of the ages, of men who have studied and thought along those lines.

No man can be a great physician or a great surgeon who does not understand, so far as is known, the scientific principles that underlie treatments, diseases, and the definite method of dealing and handling surgical cases. That is one of the dignified points about your calling and mine. We are not independent; we cannot strike out and do a thing alone. Our professions are the result of science in your calling and science in my calling, the accumulation of the contri-

butions made by thousands and thousands of men, both mighty in position and humble in position, who faithfully and honestly have built those callings up.

The next point in reference to a profession is this: Many men have had culture; many men have had knowledge of a science or of a profession and mastered it, but when they do not use it for the purpose for which the profession was established and developed, they are not entitled to be called professional men. One of the great distinctive qualities of every profession is this: That the professional man ought to feel that whatever he knows and whatever he has acquired in his profession is not merely for the gratification of his intellectual appetite, not merely for the satisfaction of the possession of knowledge, but that he holds this knowledge and skill in trust for all.

The professional man is the greatest and most important trustee for the preservation and development of society that this world knows. Each of us, you and I, enjoys a capacity that, properly applied, can ameliorate the conditions of society and the troubles and necessities of the individual members of it. And that is one of the distinctive features of a professional man. He must apply his knowledge in the service of others. The most striking, and yet, from a certain standpoint, the most pathetic, as far as this world's measures and standards are concerned, and yet the noblest of all the attributes of the profession is that the professional man, the true professional man, never uses his talents primarily for the accomplishment of any scheme or plan of his own. He is the man who stands ready to serve other men in the realization of their conceptions of labor or work, or to aid other men in the establishment of their enterprises from which they reap, quite often, large profits.

I say that is a pathetic side of the professional life. My observation has been that the typical man of my profession pays less attention to his own business than to that of anybody else. And I am also satisfied that the typical men of your profession spend much less time in looking after their own personal affairs and interests than they do in looking after the affairs of their clients. None of us are altogether unselfish, but that is one element of selfishness that you do not find in the typical and true type of a professional man. He is not avaricious to an unreasonable degree; he is not ambitious of accumulating great wealth. The true surgeon would rather invent an operation that would restore men and women to health and strength than to accumulate the fortunes of a Rockefeller, a Carnegie, or a Rothschild. I never pass a certain spot in New York City, on 42d Street, that I do not pause for a minute before a monument that stands in that square or little park adjacent to the Public Library. In that great city, the product of so many kinds of American genius, but which stands in the common mind primarily as the center of finance, of trade, and of business; where great skyscrapers are erected as greater or less monuments to companies or to private individuals; and where the influence of Wall Street throbs—and I am not criticising it; it is necessary to have the great financial heart somewhere, and I know of no better place to have it than in Wall Street. But as I stand before that great monument to James Marion Sims, whose one discovery in surgery, one operation which he invented, has given life and health, I might say, without exaggeration, to millions of women throughout the length and breadth of the world—as I stop there, I say: There is the difference between the professional idea and the business or commercial idea.

The greatest consolation that comes to a professional man, if he sits down and thinks about his life, is this (I do not mean to take it to myself, or for you to take it to yourselves individually, but I mean to all of us as a group): How far would the world be along today if we hadn't had generations of the patient and devoted attention to professional duties, given by all the professional men in the world? Suppose the man who has a genius for the accumulation of money did not have the counsel and aid of wise men in the formation and organization of his enterprises, the creation of his companies and his corporations, the assistance of such men in the enactment of laws that make it possible for this great commercial engine to be built—and then the defense against the various attacks that shining success always invites—could he ever have achieved it?

There is no great financial or business magnate in the world that could have achieved the same success for himself, or for the community in which he lives, without the aid of professional men like you, and other professions, which have

made it possible for him to realize in tangible terms what he was striving to do. He lisps to you and to me and men of our kind what he hopes to do, and, through professional aid, he works it out. And this is true: If you were to take the professional men out of the world today (I make this statement without fear of contradiction) you would put almost a positive brake upon any further development, either in business, finance, or any of the various phases of life that make it worth living and worth while to people. I think that is enough to make a professional man feel the importance of his calling.

Now, aside from that pleasure which a professional man has, he must rely upon that indescribable pleasure arising from mental exhilaration when he knows that he has solved a problem that is worth while. No joy comes to any business man equal to that which comes to a professional man when he realizes that he has solved a great problem in his business, perhaps for the benefit of someone else. Of course, as the man swings out further and uses his talents in broader fields and broader schemes, that joy is greater, but to think and work in his line, a professional man gets a pleasure in life which the men of the other callings in life can never understand.

But the professional man sometimes has his innings in the world, and we are entitled to enjoy it, whether we are up in front or not. When the war storm broke in 1914, the most helpless people in the world were the so-called business men—men who had amassed great fortunes, who had controlled great enterprises throughout the length and breadth of the world. But for the professional man, you and me, I cannot undertake to describe what would have happened to civilization.

When France, bled white and staggering against the foe, was almost on the point of cracking, who went to her rescue?—a professional man, a journalist, Clemenceau, the Tiger, seventy-six years old, who arose from his sanctum like a great strong beast of courage and defense, and wrought the transformation that held France until the day of deliverance.

And when our mother country, England, tried all remedies and was getting nowhere, it was the Welsh lawyer, Lloyd-George, who took in his own hands the affairs of the empire and aroused a great people to a great strategical effort. And when the armies of the world were lined against each other, through middle Europe and western Europe, between Germany and France, was it any great manufacturer, any great merchant, any great operator of mines that arose equal to that occasion? It was a schoolmaster in a war college, sixty-four years old before he had ever commanded an army; who never had commanded an army in his life until the first battle of the Marne; and who, by the time he was sixty-eight years old, had proved himself to be the greatest master of minds in battle that history records. He is a type of the professional man.

And now, after it is all over, as far as the fighting goes, and the restless after-war period has set in, with all its possibilities of terror and disaster, and all of its possibility of glorious progress and achievement, when the whole fate of the world seems trembling in the balance, what man occupies the attention of the world? What man? What type of man grips the imagination of the world's society, and seems to be, at least if we read correctly, fashioning the destinies of generations yet to come? The school teacher, trained for the legal profession at first, but the school teacher, the professor—the President of the United States.

Now, there is a reason for the fact that the professional man influences civilization and the history of the world as he does, and as he has done for generations. It is the type of mind and character that professional life has made. Today it is subject to attack in my profession and in yours, and I want to make this parting appeal to you. You have every reason to believe that if your profession or mine departs from its traditions, the tradition of unselfish devotion to our callings and the tradition of high and noble purpose of service, you and I cannot expect our professions to contribute to the welfare of society in the future as they have done in the past, because, it goes without saying, the men who have achieved so much for the good of humanity through professional training and professional standards, are the products of that training and the result of those standards, and if you strike them down, or suffer them to be impaired, while you and I may gain some temporary reward, we are placing upon the altar the spirit of professionalism that has been the soul of the progress of society for hundreds and hundreds of years.

The Competition for the Federal Buildings, 1792-1793

III. THE COMPETITORS AND THEIR DESIGNS

By FISKE KIMBALL and WELLS BENNETT

AMONG the score of men who submitted designs in the competition for the Federal buildings, the greater number belonged to the class by which our Colonial buildings had been created, the builder-architects. Such craftsmen, who themselves took part in the execution of their designs, are the very men about whom we have hitherto known the least. We have been prone to regard them as nameless tools of the blind forces of tradition, working coöperatively by instinct, lacking in individual personality. As in the case of the mediæval craftsmen imagined by Ruskin and Morris, however, we find on closer examination that such a view reflects less the character of the men themselves than our own unfamiliarity with them.

In the cases of a number of the competitors: Dobie, Williamson, Faw, Harbaugh, Small, and McIntire, we know definitely that they contracted for buildings, or worked on the scaffold or in the shop, as well as over the draughting-board. Lanphier came of a family of carpenters. Hart and Diamond, of whom we know practically nothing otherwise, as well as the anonymous author of the plan numbered "33," also show in their designs the characteristics of the work of the Colonial builders. In the case of Wintersmith, a former engineer officer of Burgoyne's army, the evidence we have suggests that he was engaged in building after the Revolution. The majority of these were Maryland men, the local builders, making their best effort to secure the important work which the choice of a site for the Capital had thrown into their locality. They form a coherent group which may be considered first. Crude as their drawings are, we should not forget that the executed work of these men—the lineal successors of the builders of the splendid houses of Annapolis—would have infallibly shown merit in the handling of materials and details, and that its inadequacy was the inadequacy, for monumental purposes, of the Colonial style as a whole.

The Maryland Builders

JACOB SMALL

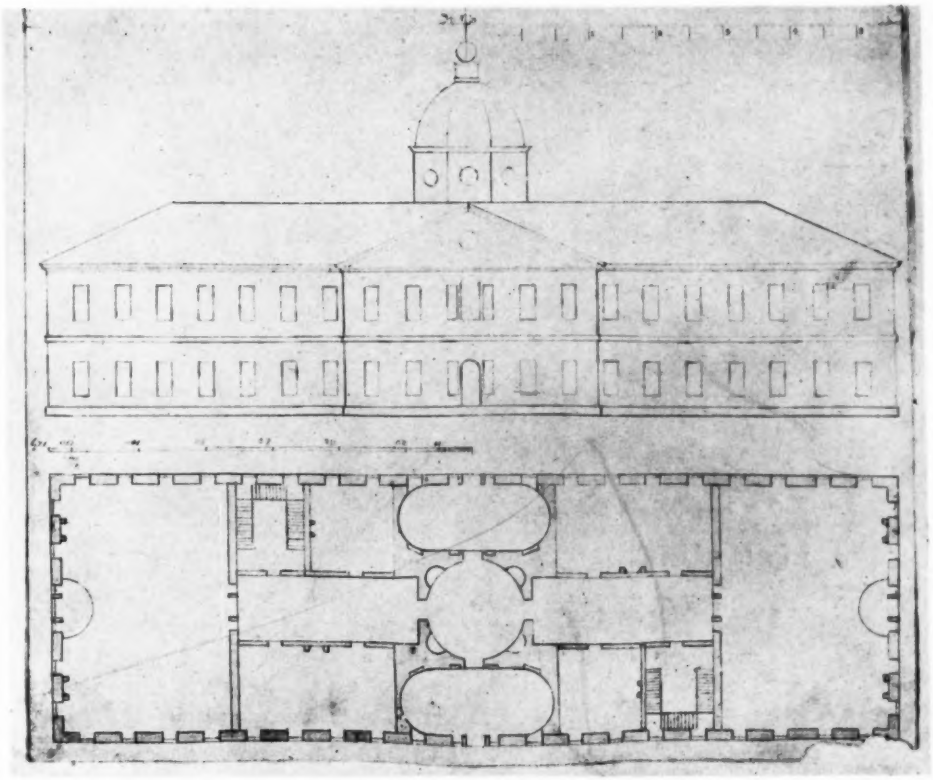
Jacob Small, of Baltimore, was the founder of a line of builders who, in successive generations, followed the progress of American architecture from Colonial naïveté to classical dignity.

Of the man himself we catch several glimpses in early records. Thus, at the time of the census of 1790, his household consisted, beside himself, of "one free white male under sixteen," and "two free white females"—a son and, presumably, a wife and a daughter. As he was an artisan of modest pretensions, it is not surprising that he had no slaves. On December 11, 1794, he was married a second time, to Nancy Fleetwood,[1] and many entries regarding their children occur in the register of St. Paul's parish in Baltimore.

A single building, beside his competitive designs, gives us some idea of his architectural work. The Evangelical Reformed Church, "erected in Conway Street by the German Evangelical Reformed Congregation" and opened in 1785, was of his design, according to the legend on the margin of the Poppleton plat of Baltimore in 1822. The view there given shows the conventional Colonial scheme of a church with galleries and a western tower. The tower, which has pilaster strips at the angles, has a large octagonal belfry with a domical roof, crowned by a smaller lantern of similar form. No very rich detail seems to have been possible within the cost of $10,000, and the cusped arches of the belfry stage reveal that Small's feeling for classic detail was not of the purest.

Almost all the forms used in this church recur over and over again in his elevations for the Capitol and the President's House. The only substantial differences between them are in the number of the tall pilasters and the size of the cupola. In most of the designs the pilasters occur only at the angles of the building or of the central pavilion, but in the two most elaborate

[1] "Record of Maryland Marriages," 1777–1804.



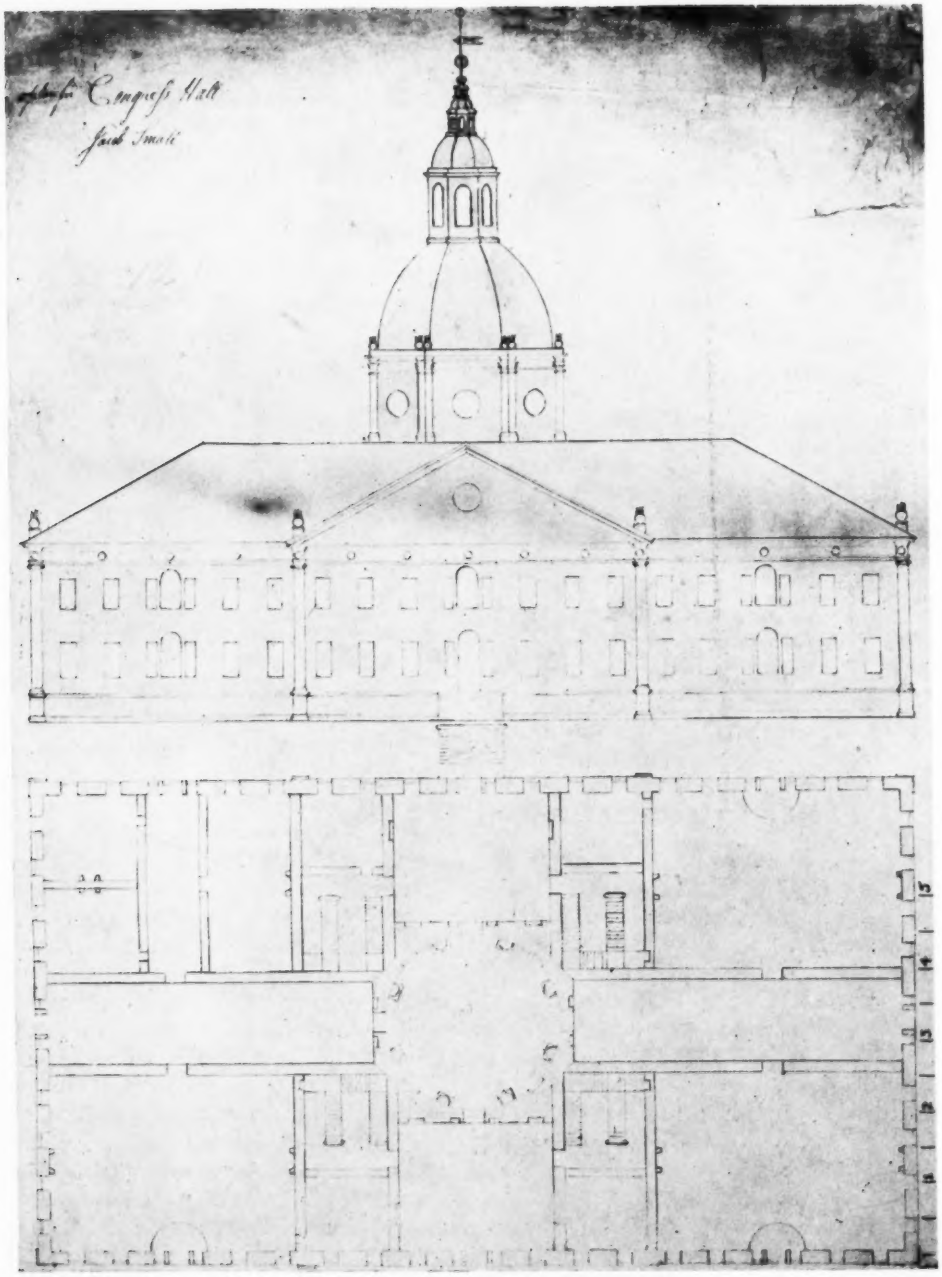
SCHEME A FOR THE CAPITOL.—Jacob Small
(From the original drawing in the possession of the Maryland Historical Society)

studies for the President's House they are carried all around the building at equal intervals. As the interval embraces two bays of windows, however, the scheme does not differ essentially from that of many late Colonial houses, such as the Craigie-Longfellow house. The dome proposed for the Capitol has a close resemblance to that of the Maryland State House at Annapolis, a novel feature in what was then the finest and most recent building in the state. The whole Capitol façade, indeed,—especially in the simplest study,—has a close similarity to the building at Annapolis. In the plan there is some attempt to create a monumental rotunda and to vary the shape of the rooms, but it is very evident that Small's vocabulary of architectural forms was even more restricted than that of the best pre-Revolutionary designers in the more favored colonies.

An ill-spelled letter from him to John M. Gantt, secretary of the Commissioners, March 9, 1793, records a premature rumor that Harbaugh's plan for the Federal Hall had been adopted, and asks the return of his own plans.[1]

Small's son, Jacob, came under the influence of the French architect, Maximilian Godefroi, while building the court-house in St. Paul's Lane (1814ff.), and of Latrobe in building the Baltimore Exchange (1815ff.). In the façade of the old Masonic Hall in Baltimore, erected 1813–1822, of which Small himself was the architect, he employed a large arch motive with a screen of Greek Doric columns, very effective in its composition. He served as lieutenant-colonel and brigade quartermaster of volunteers in the War of 1812,[2] as librarian of the Mechanical Company in 1820,[3] and as Mayor of Baltimore in 1826–1830. His portrait hangs in the

[1] "Letters Received by the Commissioners," No. 222, vol. 2.
[2] L. H. Diehlman: "Maryland Roster of the War of 1812," p. 439.
[3] G. W. McCreery: "The Ancient and Honorable Mechanical Company of Baltimore," (1901), p. 42.



SCHEME B FOR THE CAPITOL.—Jacob Small
(From the original drawing in the possession of the Maryland Historical Society)

Mayor's office. A grandson, William F. Small, worked on the Exchange Hotel in Baltimore,[1] designed the English Lutheran Church, 1824,[2] and was engineer of the Baltimore and Susquehanna Railroad Company in 1829,[3] before his early death.

ABRAM FAW

Abram Faw had been a contractor for supplies to the Maryland troops during the Revolution, as we learn through several items in the State Council Books and in the Correspondence of the Council.[4] Aside from the purchase of clothing there is mention of the building of a barrack in 1778–1779, for which Faw expended £3,142 11s. 1d. on account of the state.

His letters to the Commissioners of the Federal city are dated from "Middle Brook," or Middleburg, a little hamlet then forming part of Frederick County, Maryland. The census records of Frederick County in 1790 show that he was somewhat more prosperous than other Maryland competitors. His household included two slaves—besides himself, two free white males over sixteen, and one free white female.

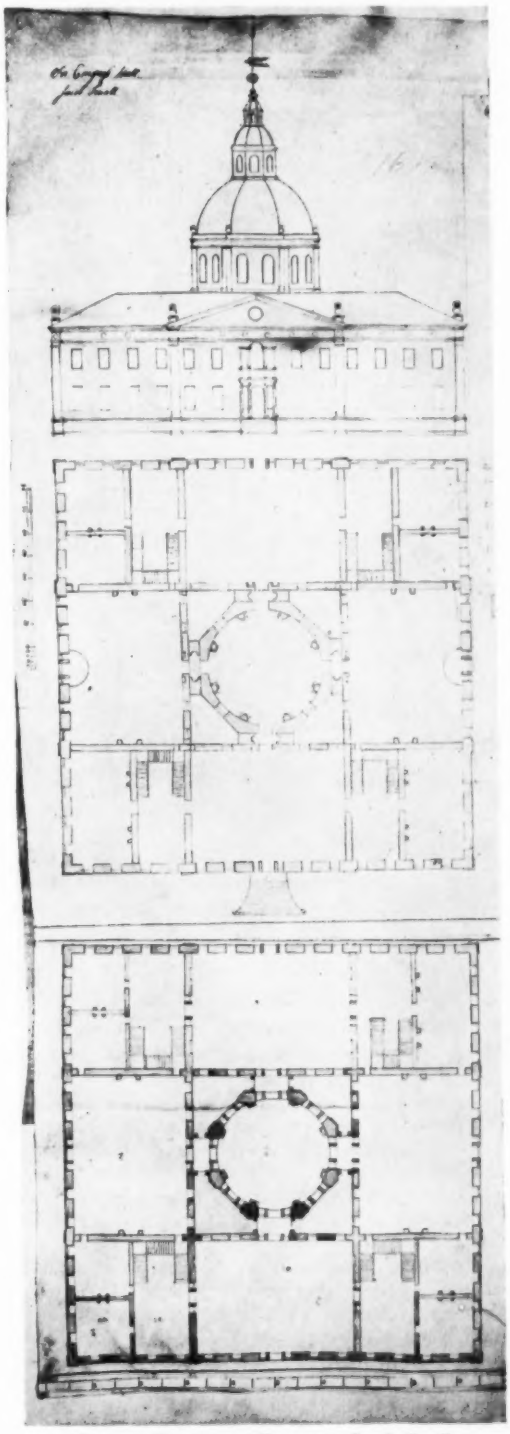
His earliest connection with the city appears in a letter of January 24, 1792, written by him to Thomas Johnson, the Maryland member of the Commissioners, reporting some imprudent remarks of Roberdeau, the assistant of L'Enfant, who was then in the final stage of his struggle with the Board.[5]

Perhaps anticipating the dismissal of L'Enfant, who was then entrusted with the design of the public buildings as well as the city plan, he wrote Johnson again on January 28, offering his own services.[6]

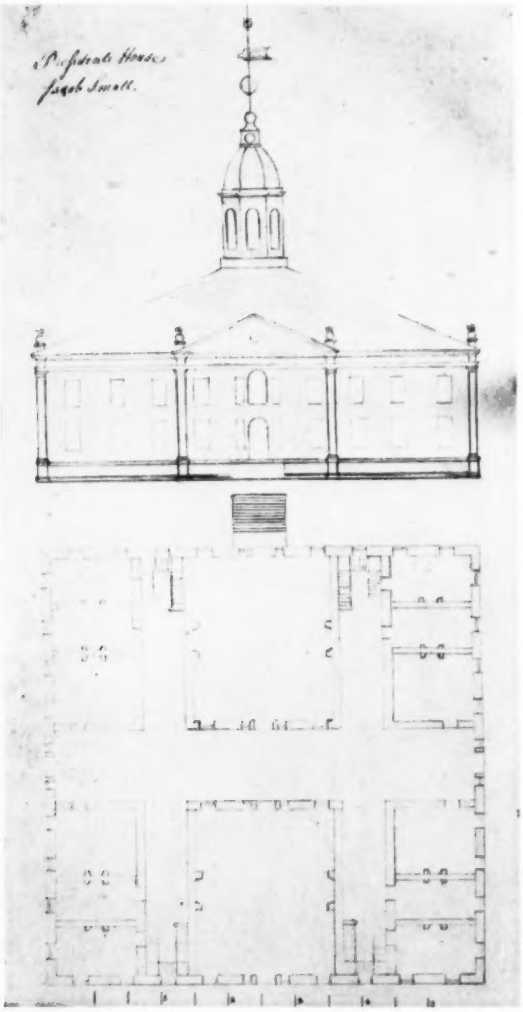
Sir

After I had the Honor of a Conversation with you on the Subject of the Publick Buildings and other works Design'd to be Carried on in the City of Washington, I began to feel myself Interested in its Success and Disposed to make you an Offer of my Services, so far as my Abilities and Knowledge of the Business might extend, and on such Terms as I think much of the Publick's money might be sav'd, which I am Confident is a primary motive with you, and at the same Time relieve you from a Con-

[1]William Dunlap: "History of the Arts of Design in America" (1834).
[2]Lucas: "The Picture of Baltimore" (1832), p. 140.
[3]J. T. Scharf: "Chronicles of Baltimore," (1874), p. 432.
[4]"Maryland Archives," vol. 16 (1897), p. 520; vol. 20 (1901), pp. 131, 132, 148, 271, 318, 482, 544, 555, 556.
[5]"Letters Received by the Commissioners," No. 76, vol. 1.
[6]*Ib.*, No. 78.



Scheme C for the Capitol.—Jacob Small
(From the original drawing in the possession of the Maryland Historical Society)



SCHEME D FOR THE PRESIDENT'S HOUSE.—Jacob Small
(From the original drawing in the possession of the Maryland Historical Society)

siderable Share of the Vexation and Burthen Always Attendant on Extensive Undertakings

For Commission of Five p^{r} C^{t} (*the Usual Charge is Ten*) on the whole Expenditures, I will render the following Services viz^{t}.

By and with the Advice and Direction of the Commissioners from Time to Time, to Contract for, Inspect, Measure, Assertain, Receive, and Secure all Materials, and see that such as are subject to waste or Damage be put under Covers—

To Employ, settle with, and Pay off the Hands engag'd by Time, Piece work, Measurement, or Otherwise with a Power to dismiss such, as are Disorderly or do not do their Duty—

To Superintend and Examine the work as it is Carried on, and see that it be done in a Faithful and proper Manner, and Accordingly to the Contracts respectively entered into—

To see that All Materials are Delivered in a proper Time, of a Sufficient Quality, and in good order, that such workmen as may be employed by piece work, or on Measurement may not complain of Disappointment in Materials, or Detention on the part of the Comm^{rs}., And that those who necessarily may be employed by Time, that their work may be so Arranged, that there may be as little Loss of their Time as possible.

Under an Impression that such extensive works and Buildings cannot be prosecuted to Advantage in any Considerable Degree, unless the Board of Commissioners were Always sitting, or some person of Intelligence and Experience on the spott to Represent them in their Absence, as it is Evident a small Circumstance often Derange Matters in Buildings so as to Occasion Delays, Disappointments, and Always Terminates in Cost to the Employers—

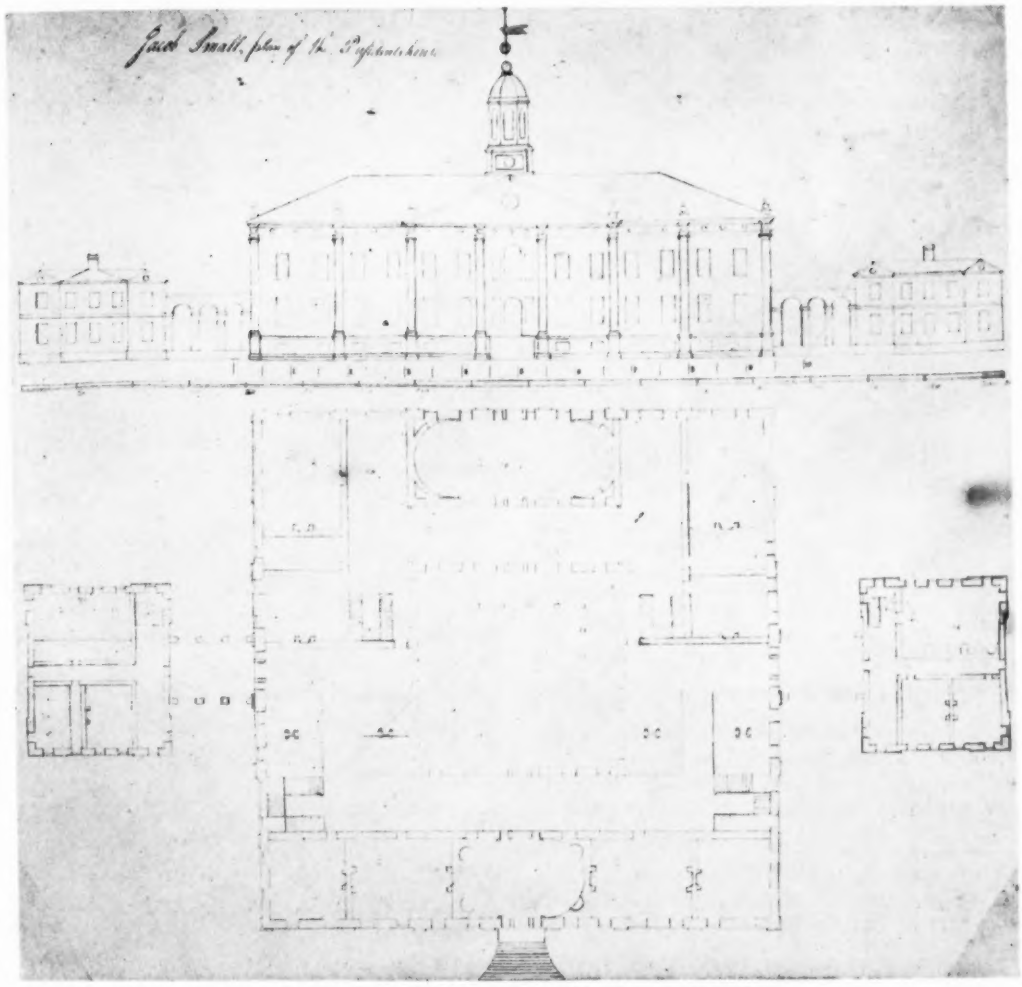
If you are of Opinion Sir that the [fore]going Propositions Merit any Attention on [prin]ciples of Public Utility, you'll please Submitt them to the Consideration of the Honble Board of Commissioners, and if they think proper to receive any farther Explanation on the Business, I will do myself the Honor to wait on them for that purpose—

And am Sir, most Respectfully
Yr Obed^{t}
Hble Serv^{t}
A FAW

Faw's design is, no doubt, the feeblest of all those submitted. Only a ground-plan is preserved, and this lack of the required elevations and sections may have been what was implied by the Commissioners when they wrote Jefferson on June 6th of having received "an imperfect Essay of Mr. Faw." The plan itself, however, was not less imperfect, both in its irrelated features and its lack of monumental qualities. It is a mere barrack, subdivided in accordance with the practical requirements, but without even regard for symmetry in the side elevations. The only attempt at magnificence is the elliptical colonnade introduced at the intersection of the corridors, but this is given no architectural relationship with the adjoining walls. The design was scarcely such as to inspire any confidence in Faw, and it is not surprising that he seems to have received no employment from the Commissioners and henceforth drops from sight.

LEONARD HARBAUGH

That Leonard Harbaugh submitted a design for the Capitol we know from a reference to it by the Commissioners in their letter to Blodget



SCHEME E FOR THE PRESIDENT'S HOUSE.—Jacob Small
(From the original drawing in the possession of the Maryland Historical Society)

of August 29, 1792. In speaking of a conference, which might be called the second judgment, over a revised design by Hallet, with designs by Turner and Blodget, they say: "Something in each, as well as in an Essay of Mr. Harbaugh gave information and claimed approving notice." A rumor even reached Small the following March, as we have seen, that Harbaugh's plan had been adopted.

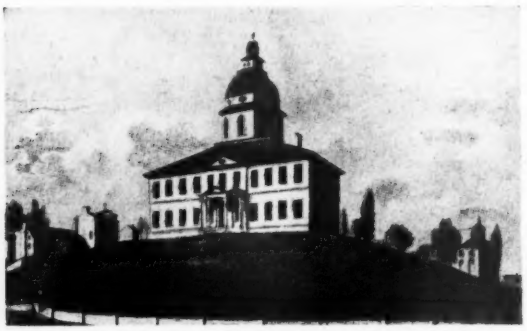
What the provisions of his design were we can only surmise, as his drawings themselves have disappeared. Regarding Harbaugh himself and his other work, however, we are better informed than in the case of most of the competitors, and this knowledge will permit us to form some idea of the probable quality of his scheme for the Capitol.

The name Herbaugh or Harbaugh is a familiar one among the Pennsylvania Germans, having later been borne by the author of a well-known collection of poems, "Die Harfe." We first hear of Lœonard Harbaugh in Baltimore, where in 1784 he underpinned the old courthouse and supported it on a masonry arch so that Calvert Street could be carried through beneath it.[1] In 1788 he was one of the Commissioners of Baltimore town.[2]

His connection with the works in the Federal

[1] J. T. Scharf: "Chronicles of Baltimore," pp. 62-63.
[2] *Ib.*, p. 254.

district began very early, as he designed and built the first important structure undertaken by the Commissioners, begun before designs for either the Capitol or the President's House were adopted. The circumstances are described



THE STATE HOUSE AT ANNAPOLIS
(From an old print in the Maryland State Library)

in a letter from the Commissioners to Jefferson, March 30, 1792:[1]

SIR

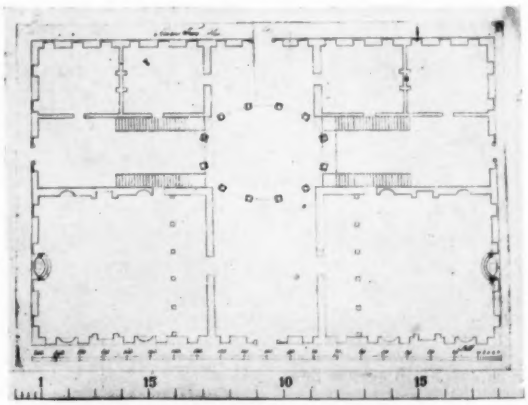
Having felt much anxiety at our last meeting to see business of some sort commenced here, we determined on the immediate erection of a Bridge over Rock Creek, and advertized for Models to be exhibited to us by the 26th. Mr. Herbaugh from Baltimore, an artist with whose ingenuity you must be acquainted from his patents, exhibited to us the inclosed one, which has our approbation, as well as that of all here. . . .

Mr. Herbaugh gives us reason to think he will undertake the causeway likewise. He returns to Baltimore tomorrow to prepare for the undertaking he has engaged in conditionally, if it receives the President's assent, of which we promised him to request you to drop him immediate notice at Baltimore that there may be no delay. . . .

From our acquaintance with Mr. Herbaugh, we are impressed with the most favorable opinion of him, and besides flattering ourselves that he will be found generally useful, think he will be the most proper person we can engage, when it shall be necessary to undertake the Canal and the contraction of Goose Creek. . . . .

The bridge was situated at K Street, and was the first attempt to bridge Rock Creek, with permanent materials. A slight wooden bridge, which had been built at M Street by inhabitants of Georgetown in 1788, already needed replacement.[2] Harbaugh's plans and elevation are preserved among the District of Columbia Papers at the State Department.[1] They show a single masonry arch, forty-two feet wide and sixty feet in span. Stone voussoirs of alternating lengths, stone quoins framing the piers at either end, a panelled parapet, and a filling of brick compose a design which is very respectable judged even by professional standards. The drawing of the fish in the bas-reliefs of the parapet is open to cavil, to be sure. In its main lines, however, the bridge is a worthy forerunner of the great arched structures which have finally, within the last few years only, been thrown across Rock Creek at Connecticut Avenue and at Q Street. The adjoining development, shown on the block plan, also reveals an enlightened sense for public improvements. A causeway and quay were proposed, with a public landing-place, and building lots filled in to pay the cost of the enterprise. The whole was an ambitious project, yet for the moment it seemed justified by the rosy expectations which were still entertained for the new capital city.

Harbaugh, it will be noticed, not only made the design for the bridge, but "undertook" or contracted for it likewise. His proposal[2] and the contract,[3] show that the contract price was £3,250 "current money," and that the bridge



PLAN FOR THE CAPITOL.—Abram Faw
(From the original drawing in possession of the Maryland Historical Society)

was to be finished in August, or sooner if possible. Harbaugh wrote:

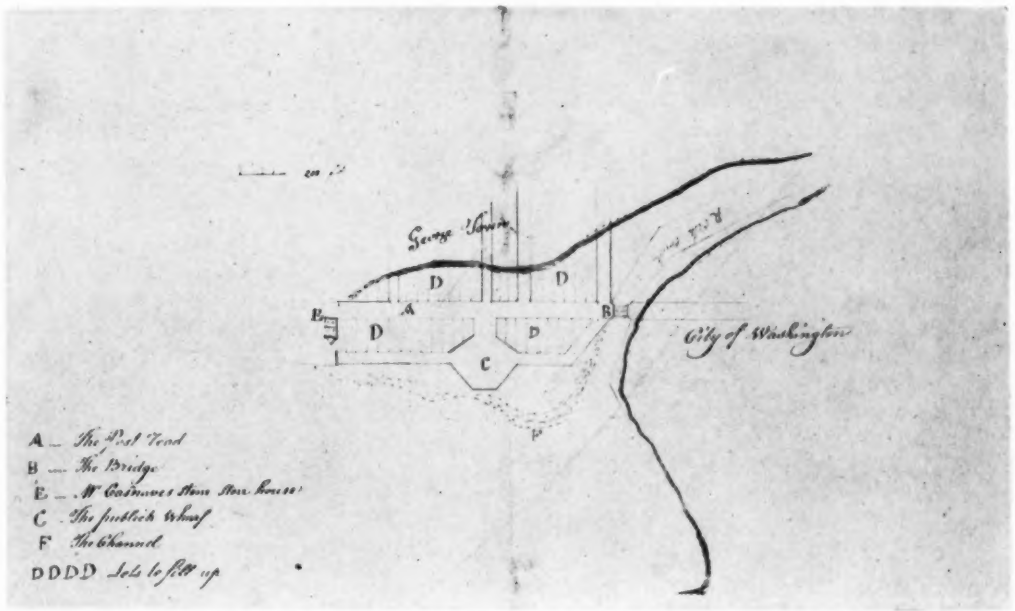
[1]Department of State, "District of Columbia Papers," vol. 1, No. 91.

[2]W. B. Bryan: "History of the National Capital," vol. 1 (1914), pp. 62 and 243.

[1]Vol. 6, part 2, Nos. 157, 158. A similar design by Harbaugh, lacking all sculpture except two swags, is preserved in the Office of Public Buildings and Grounds, File No. 405.9.

[2]"Letters Received by the Commissioners," No. 87, vol. 1.

[3]Department of State, "District of Columbia Papers," vol. 6, No. 110.



PLAN OF THE PROPOSED IMPROVEMENTS AT THE MOUTH OF ROCK CREEK, 1792.—Leonard Harbaugh
(From the original drawing in the Library of the Department of State)

"I shall require no Mony in advance but what may be expended in the progress—and that to be paid from month to month or if necessary from week to week as yourselves or your treasurer shall think fit vewing the work don & the materials collected."

He had also offered, if the Commissioners preferred, to build the bridge by day labor, to superintend the work "for one whole year or any shorter time at one Guinea per day and my reasonable expenses." The Commissioners wrote to Jefferson on April 14th, "Mr. Herbaugh who is a modest well tempered man, seems equally disposed and able to be very useful to us,"[1] an expectation which Harbaugh soon justified by devising stone-sawing machinery which was needed.[2]

The cornerstone of the bridge was laid with much ceremony on July fourth. Harbaugh himself informed the Commissioners of the arrangements,[3] and marched in the procession at the head of "the artists and workmen concerned in erecting the Federal Bridge," as the Georgetown *Weekly Ledger* duly chronicled on July 7th.

[1] *Ib.*, vol. 1, No. 95.

[2] Letter of the Commissioners to Jefferson, January 5, 1793 and that of Harbaugh to the Commissioners, October 27, 1795, in "Letters Received by the Commissioners," No. 139, vol. 1, and No. 690, vol. 7.

[3] "Letters Received by the Commissioners," No. 108, vol. 2.

When the design of the bridge was generally known, however, it did not escape criticism. Shortly after the laying of the cornerstone, the Commissioners received a letter from George French taking exception to it, both on artistic and practical grounds, for having but a single arch. He urged that the tidal flow required three arches. Influenced by such reasoning the Commissioners evidently considered adding supplementary arches on either side, and Harbaugh accordingly made a revised design which is preserved at the Office of Public Buildings and Grounds.[1] The central arch remained unchanged except in decorative detail; the parapet was stepped instead of forming a continuous slope.

Unfortunately, even the experience which Harbaugh had gained in building the arch under the Baltimore Courthouse did not prove sufficient to enable him to execute a stone arch of sixty feet span. The cost was soon found greatly to exceed the contract price.[2] Worse than this, on October 16, 1794 the Commissioners notified him that the bridge was not acceptable, and that they must bring suit on his bond unless, within a reasonable time, the structure should

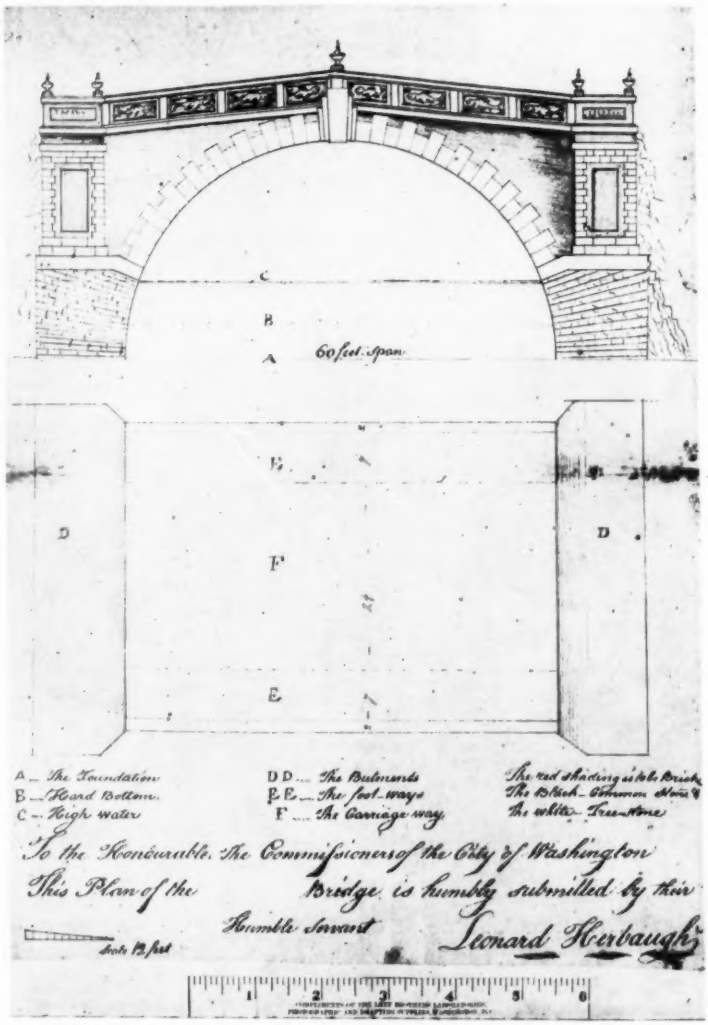
[1] File No. 405.9.

[2] Department of State, "District of Columbia Papers," vol. 6, No. 26.

be put in condition to be accepted. Early in 1795 an agreement was made with the owners of the adjoining lands to take down the main arch, "which was in danger of falling," and to erect a drawbridge.[1] Careful examination of the site today fails to reveal any trace of the old abutments. To make good the loss of the Commissioners' advances on account of the bridge, Harbaugh refunded $600 and gave a mortgage on the property which he had acquired in the city.[2]

For some time between 1795 and 1798 he was employed by the Potomac Company, which was engaged in improving the channel of the river and building canals around the Falls.

On the practical suspension of the work of the company in 1798, Harbaugh offered his services to the Commissioners "in the undertaking of some of the new buildings" or otherwise "in the line of my profation."[3] The Board showed that his failure with the bridge had not discredited him, by accepting his bid of $39,511 for the construction of the Treasury Building.[4] It had been the lowest one submitted, one by James Hoban, the designer of the President's House, having been the highest. The Board's advertisement, Harbaugh's proposals detailing the materials and construction, and the contract, dated June 23, 1798, are all preserved in the Commissioners' records.[5] The contract drawing of the elevation, from the design of George Hadfield, is in the Coolidge collection in Boston, and has been reproduced.[6] This time Harbaugh gave such satisfaction that next year he obtained the contract for the similar



DESIGN FOR THE FIRST MASONRY BRIDGE OVER ROCK CREEK, 1792.
Leonard Harbaugh
(From the original drawing in the Department of State)

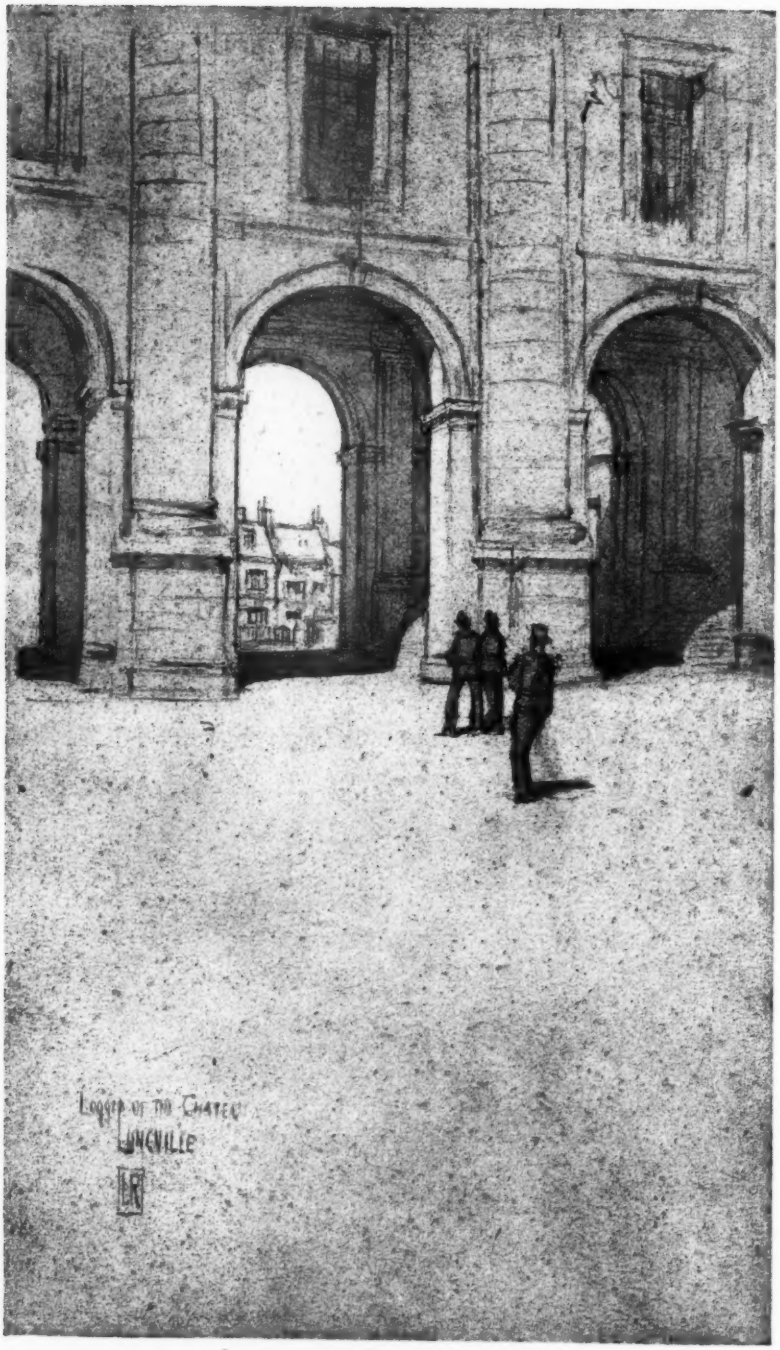
War Office,[1] and, the year following, for a new bridge over Rock Creek at M Street.[2] For this the Commissioners adopted a wooden bridge more in accordance with the real conditions in the city.

Here our present knowledge of Harbaugh ceases. He was not the only builder in his family: a reference in Latrobe's correspondence to a Thomas Harbaugh, who built the Hagerstown Courthouse from Latrobe's design in 1817.[3]

(To be continued)

[1] "Proceedings of the Commissioners," January 9, 1795, and their report to the President, January 29, 1795.
[2] "Documentary History of the U. S. Capitol," p. 62, and W. B. Bryan: "History of the National Capital," vol. 1, p. 243.
[3] "Letters Received by the Commissioners," April 18, 1798, No. 1335, vol. 13.
[4] "Proceedings of the Commissioners," vol. 4, p. 158.
[5] "Letters Received by the Commissioners," 31357 and 1381, vol. 13, and "Proceedings," vol. 4, pp. 162–165.
[6] Kimball: "Thomas Jefferson, Architect," fig. 180 and pp. 179-180.

[1] "Proceedings of the Commissioners," July 29, 1799.
[2] *Ib.* September 11, 1800. Cf. Bryan: "History of the National Capital," vol. 1, p. 49.
[3] Letter of March 10, 1817, in possession of F. C. Latrobe, Esq.



LOGGIA OF THE CHATEAU—LUNEVILLE
After a drawing by Louis C. Rosenberg

NEUF MAISON—RUE DE BRUEXELLES
After a drawing by Louis C. Rosenberg

Post-War Committee

In addressing the first session of the Post-War Committee, President Kimball spoke as follows:

The Professional Principle

In considering the professional aspect of the Post-War Committee's inquiry, we are by its circular invited to treat the subject as one of relationship.

"Are we in right relation with those we serve—the public?"

"Are we in right relation with those with whom we serve—all those who help us to build?"

"Are we in right relation with those who parallel our service in our own and our brother professions?"

It is my province to point out the part professionalism does, and may, play in all this. That we may arrive at something tangible, we must, at least for argument's sake, come to common ground on the thing we are talking about. What is this principle we call professional, and which we are all so willing to have associated with architectural practice? To me it is what remains after you eliminate the art we have chosen to patronize and the commerce which we are forced to practice in order to patronize that art. It is the third corner of the architectural triangle.

Art.—Our art, architecture, gives its name to our calling and the objective to our life's study, and, to some, the very God they worship.

Commerce.—That life may be sustained we serve with great fidelity that corner of our *cadre* which has to do with the *quid pro quo*, and in its service we are forced to cultivate a side of us that can but be destructive of the thing on which our art depends. Here I find the great paradox that we are living—living with such indifferent success; both elements as intensely selfish as they are involving, the one working to the limit to nullify the other. It is a good example of that "cancellation of effort" which accounts for much professional ineffectiveness.

There remains the third corner, the professional element, universally approved and respected, meagerly understood, however, and but weakly followed. As a principle, it seems to me all that is unselfish in our vocational lives, all which has to do with the welfare of those in whose service our lives are spent—our clients and the public.

A glance at any of the recognized professions will show, I think, that each has its own titular objective that corresponds to our art of architecture, and each, by virtue of necessity, its destructive, though essential, commercial corner, which in each case is balanced by this unselfish counter-irritant—its professionalism.

In medicine, law, engineering, in fact, in any profession, as in architecture, the titular objective is always essentially selfish and full of the limitations of selfishness, but in no other particular are these objectives at all alike, nor do they offer any common interest, while in the commercial and professional elements all professions seem to be clearly alike, the one element an undesirable, and the other a most desirable, common factor to all, and of surpassing importance, it seems to me, in this matter of interrelationship which we are considering. It is to the possibilities of the professional element as a democratizing influence within each profession, and as common ground between all professions, that I wish to direct your attention.

Art, through its exclusiveness, tends to disorganize, to separate into *cliques* and then to subdivide them, a process that results in impotence. This is why art affords no bond that binds, and why its associations are so often ineffective and short-lived.

Commerce, on the other hand, has long since recognized the importance of effective organization, which makes it such a terrible thing with which to contend, and results in such a secondary role for art, where they assume to practise as partners. On the other hand, in his professionalism, the least among us, or among any of our brother professions, may aspire to be the peer of the greatest in the purity of his profession and in his joy in its practice. It is for this reason that the professional principle stands high as a possible bond of union among and between all those who aim to render skilled service for a fee shorn of contingent profit, and where the interests of client and public are cared for first.

I referred a moment ago to "professional ineffectiveness." What I had in mind was the condition resulting, not only through the failure

to help each other, but subconsciously, perhaps, through the habit of interference with the successes of each other, that characterize the relationships of professional men, a condition brought about, I think, quite naturally, as a result of professional intelligence which clearly discounts the assumptions and presumptions in others that it condones in itself. A perfect familiarity with—in fact, the profession of—some fifty odd sciences, each worthy a man's life study, is an architectural assumption or presumption that may well explain the discount with which Medicine and Law are apt to receive our professional advances; while between Law and Medicine the assumption is as aggravated and the discount as complete—witness the past ten years of futile effort at closer association between those two great representative professions. While many will fail to accredit the truth of this, my latest assumption, I doubt if any will deny the prevailing custom among professional men to indulge in tales of discomfiture to and of each other and before audiences proven to be more interested than discerning. To me the story that begins "once there was an honest lawyer"—like those which exploit the disasters that result from our own traditional weakness in the matter of estimating costs—has caused our respective professions to lose enough legitimate patronage to explain the full difference between success and failure in countless professional lives.

If, through professionalism as a common factor, we could reach an inter-professional understanding, based on helping instead of hurting each other, the result to the young man in the profession would, I think, be beyond price. If only some one of our brother professions would catch from our post-war activity a kindred self-questioning desire—and from the example others might follow—is it too much to hope that from some broad-minded doctor or brilliant exponent of law may not come the suggestion of a brotherhood of professions based on this common factor, this professional principle, of skilled service to others? A brotherhood or league, not of a chosen few, but of all those callings that can qualify as practising professionally; and, in such an event, might we not find recompense sufficient to have fully justified the creation of our Post-War Committee?

This idea of a brotherhood or league of professions is a very pleasant one to me, with its measureless programme of accomplishment and its limitless possibilities. First, the suggestion, followed by the response of all those who really are professional, gathering together to decide what the professional principle really is and who shall carry its banner, followed by organization, perhaps of a permanent ethical court with which to safeguard its future, and whereby each profession may, with the help of the brother professions, do what alone we have all so far failed to do, really clean house.

I am so obsessed with this idea that I do not stop at anything short of an intellectual power capable of doing the undoable thing, namely, setting a limit to the advance of that organized selfishness we call commerce, something that, it seems to me, must be done if there is to be preserved to mankind this priceless thing—the professional principle.

At all events, such a brotherhood could not fail to result in eliminating all that cancellation of inter-professional effort that now obtains, and which alone would give to the professional beginner, including the young architect, his chance to acquire a competency honestly, and before the juices of life are so dried up as to preclude his making any worthy contribution to the art to which he has devoted his life. After all, it is the welfare of this young architect which interests me, and which I had in mind when I asked the Board to create the Post-War Committee on Architectural Practice.

The Future Programme of the Post-War Committee. On the afternoon of the day preceding the Convention at Nashville, there was held a meeting of the Post-War Committee where the work already done was considered and where the suggestions of the members as to additional lines of investigation were presented for discussion. The meeting unanimously resolved to recommend the continuance of its work to the Convention.

On the day following the Convention, another meeting of the Committee was held for the purpose of summing up the discussions which had taken place at the four sessions of the Convention devoted to the Post-War Committee, and for offering suggestions to the Executive Council as guidance in determining a future programme.

The Executive Council will hold a meeting as soon as its members can make a preliminary digest of the opinions received through correspondence as well as of the voluminous but thoroughly interesting and very illuminating discussions at the Convention sessions. It will then consider the best plan for organizing the work of the Committee, either through subcommittees, Chapter committees, regional committees, or by the use of all three, and will issue a statement embodying its plan for organization based upon the evidence so far submitted.

Some Notes on the Education of the Architect*

By H. VAN BUREN MAGONIGLE

BELIEVING, as I do, that education is the foundation of all human relations, I confess to a sense of surprise that the discussion of it was relegated to the end of the Convention programme instead of being placed at the beginning—the beginning seems such a good place to begin. But then, like everyone else, I am always surprised when everyone else doesn't think just as I do.

I believe that it is not the province of a member of the Post-War Committee to debate the various questions the Executive Council has propounded to the profession, but to preserve, in so far as one's physical conformation may permit, that Olympian mien and that impartial, judicial attitude so necessary to a body which is to hear all, judge all, and prescribe remedies for all the ills now besetting us. What I am about to say, therefore, is not in the nature of debate—it is a statement of convictions which may be debated by others if any of them seem worthy of debate.

Conviction 1: The more I read the communications of the Council of the Post-War Committee, the more firmly convinced I am that there is not an evil or abuse in the whole category that would not be corrected by the proper education of the architect.

Conviction 2: That if architects, architecture, and the practice of architecture are in the mess they are alleged to be, it is because architects are superficial, selfish, half-baked, and far less than half-educated.

Conviction 3: That the growth of these evils and abuses is directly chargeable to the men who have dashed into practice straight from the schools, without any adequate office experience whatever; to the men who have gone into practice straight from the offices without any cultural training whatever; to the practising architects who feel so slight a sense of responsibility to their assistants that they permit them to pass through their offices without any effort to give them guidance or schooling; to the men who care more for financial success than for a good job well done; to the men who dream and make no effort to make their dreams come true; to the selfish and the slackers who whine along the sidelines and complain of those who are bucking the line; to the indifferent who don't care; to a professional society which, up to six or seven years ago, had no Committee on Education, which has never even established a scholarship in architecture, and which, after sixty-two years of existence, can only exhibit a small annual prize at the American Academy in Rome and ten trumpery watch-fobs, costing $1.60 apiece, awarded annually to ten schools of architecture, as the sum total of its contribution to architectural education, the members of which society, nevertheless, have had the impudence to propose the education of the public in appreciation of the architect.

Conviction 4: That if the schools of architecture are defective, it is less the fault of the schools than it is of an organized profession which permits defective instruction in the schools.

Conviction 5: That unless, after what I have said, I present some constructive suggestions, I shall be damned, and justly, as a kicker without a programme.

I therefore offer the following:

Suggestion 1: That, since, in modern architectural practice an architect must have, to be well rounded out and equipped, more than a mere smattering of the following subjects: Design and composition; scale; color and painting; sculpture, modeling, and carving; light and shade; texture; the use and characteristics of all the materials which enter into building practice and their proper treatment esthetically and constructively; furniture and fabrics; soils; foundations; drainage; plumbing; heating; ventilating; electricity in most of its branches; acoustics; building methods, local and general; building laws and ordinances in forty-eight states; building loans; real estate; specification writing; business methods; finance of the high, middle, and low; accounting; organization and administration; tact; diplomacy; human nature in all its masculine and feminine manifestations, whether in client, employee, contractor, workman, or fellow practitioner; the history of art; the history of the world; land and its proper use and value; the return to the land of the soldier who doesn't want to go back or never was there; economics; single, double, or triple tax; Henry George; politics; the duty of the citizen; socialism; civic organizations and how, when, and why to join them and not neglect one's business; how to take an Important Place in the Life of the Times; how to eschew the "rich or moderately wealthy" client in favor of the poor who never build anything; how to avoid hysterics when studying the last-named subject; how to be a contractor and yet maintain in spotless purity one's professional status; how to advertise and yet remain the modest and retiring gentleman an architect should be; salesmanship; social customs—the comb, the tooth-brush, and the fork and their uses; the toothpick, its use and care, its abuse and disuse—these and many other items essential to the complete equipment of the architect, which will readily occur to all of you, I submit can hardly be learned in the two-, three-, or four-year courses offered in the schools nor, without help, in twenty years in an office.

Suggestion 2: That the architectural bodies of the United States should combine to establish a school of design with branches in two or three of the great building and financial centers, intimately related to the body of practising architects, as will be suggested presently, in which the study of design and all cultural subjects shall proceed side by side with the study of building practices, business methods, economics, civics, and the like, and in which all branches of study shall be given constant and continuous practical application as a constant test of efficiency and means of correction.

Suggestion 3: That in these great building and financial centers, practising architects shall pledge themselves to receive into their offices duly matriculated students and arrange to give them practical training for and during such periods as may be determined on, upon a scale of remunera-

*An address delivered at the Fifty-second Annual Convention of the Institute.

tion such as will permit the student to live and to take the theoretical courses in the school.

Suggestion 4: That the total course in theory and practice combined shall be not less than ten years in length.

Suggestion 5: That the architectural profession should bend every energy to the establishment of laws prohibiting the practice of architecture by anyone who cannot prove an experience practical and theoretical of at least ten years, and in the course of time a diploma as a guarantee of proficiency.

Suggestion 6: That a two-, three-, or four-years' divorce from practical application of what one learns in an academic course is unsound; that summer work, so-called, is little better, and that theory and practice should be made practically synchronous.

Suggestion 7: That the study of design as such should precede the selection of a career as architect, painter, sculptor or designer in the crafts; that up to a certain point the training of the architect, the painter, and the sculptor should be identical.

Suggestion 8: That what we need is not more draughtsmen and assistants, but better draughtsmen and assistants.

That what the country needs is not more architects, but better architects.

That what the architect needs is not only more education, but better education to fit him to serve his country and his art.

Suggestion 9: That when the architect is properly educated and trained, when to the inculcation of ideas of probity in art and in his relation with the world is conjoined a knowledge of the world of business and human nature he is to go forth to face alone—when, in short, he knows his job, all his job, "new forms of architectural design," his relation to his client, to the contractor, to labor, to his community and to his country, will all have been provided for in advance.

And at the head of such a school as I have suggested, I would rather have a great human being like Theodore Roosevelt, a man all through, a practical idealist, with his head among the stars and his feet planted firmly on the earth, than the greatest designer in the world, to teach architects how to be "men in a world of men."

Professional Problems in England

While the Post-War Committee on Architectural Practice is pursuing its task in the United States, evidence is coming to hand of the similar work which is being done elsewhere. At a special meeting of the R. I. B. A., in London, in March last, several aspects of the present situation were considered. While the discussion opened with a general statement urging the necessity of legislation which would, in some measure, restore public confidence in the English building industry, there developed many opinions as to what was really the trouble. While it was pointed out that the cost of building had probably doubled, or more, since the beginning of the war, it was also made plain that there was great danger of the absorption by the government of the functions of the architect in carrying out the great housing schemes, a work toward which the profession has looked for some time as a means of livelihood during the after-war period of readjustment. Mr. Max Clarke said, in commenting upon what he considered the failure of the profession properly to safeguard its interests in this connection: "So far as the position of the architects is concerned, until all ranks among them band themselves together to try to do something for themselves they will be no better off. We are all too isolated, and we shall never be in a better position until we combine, whether by means of registration or not. It is to the rising generation I would address my remarks. Until the rising generation do something for themselves they will always be taking a back seat!"

Lieut. Scott Cockerill suggested that "the Council consider the advisability of forming amongst the whole profession a union on exactly similar lines to that already formed by the medical profession."

Mr. P. M. Fraser, supporting the suggestion, urged that the proposed conference "should not consist of ten or twenty, but of several hundred. Every member of the profession should be approached, every class of the profession should be invited. . . . This will be an opportunity, once and for all, to crush the antagonism which exists between the R. I. B. A. and the Society of Architects. . . . The Institute and the Society of Architects must come together."

Mr. Delissa Joseph, the next speaker, urged such a union. He said: "Looking back over the last few years, what is the situation? No other profession has permitted itself to be absolutely suppressed, crushed out, as the architects' profession admits itself to have been. Why? Not because there was not work for architects to do for the advancement of the interest of the country during its period of crisis; simply because the profession was disunited, and, therefore, incapable of presenting an unbroken front to the Government and the country. . . . It seems impracticable to try to induce the Government to take a greater interest in the building industry unless we present a united front. Rather let us have . . . a conference of all the architectural societies in this country to consolidate and close the doors of the profession."

It was resolved: "That the Council be asked to consider the advisability of calling a conference of those interested in the building trades, for the purpose of making representation to the Government, with the view of restoring public confidence in building." In respect to the great problem of a united profession, a problem that has been long delayed in England, it was finally resolved: "That this meeting, called to consider the professional problems of the moment, urges upon the Special Committee of the Institute to expedite its report, and to take into special consideration the practicability of bringing about a complete union of the profession."

The Special Committee referred to is much like the Post-War Committee on Architectural Practice, now taking evidence and gathering facts in order to make its report to the profession in the United States.

Unifying the Profession in South Africa

IN January last, at Capetown, South Africa, there was held a conference organized by the Registration Committee of the Cape Institute of Architects for the purpose of discussing the advisability of approaching the Union Legislature with a view to the promotion of a registration act for architects in South Africa, and also to ask the Legislature for the incorporation of the South African Institute of Architects.

At present, the only province in the Union of South Africa having a registration act is Transvaal, and this act prevents architects from any other province from practising in the Transvaal without first securing a license and paying registration fees and annual subscriptions to the Association of Transvaal Architects, for the right to practise in the Transvaal. It appears that architects in other provinces feel the injustice of this arrangement, inasmuch as Transvaal architects may practise where they please in other parts of South Africa.

The conference exposed some differences of opinion, as might be expected, but ended in the appointment of an executive committee to approve the detailed terms of a registration act in accordance with the principles agreed upon at the conference. The conference also adopted the principle looking toward the statutory incorporation of an institute of South African architects, consisting of a federation of the various provincial institutes and vested with legally defined powers for administrating the registration act where collected action might be required for the whole Union. The conference was almost unanimously in favor of the principle of registration, and yet one cannot read the narrative of the event without being greatly impressed with the basis of the opposition offered by Mr. J. M. Solomon. His remarks have to do with the question of esthetics alone, but they involve a principle which the framers of every registration act would do well to bear in mind, and that is that you cannot produce great architecture by legal methods alone. Mr. Solomon's remarks are well worth reprinting. He said, substantially:

"I hold that any motion (the adoption of the principle of registration) of the kind such as is before me and has been proposed does impute a motive. It imputes a motive in this respect—that it holds that in South Africa there is a particular caste of men who have the rights and privileges which others have not acquired, and for that reason you should have registration in order to prevent anybody else from exercising those privileges."

Proceeding, he said he had listened that afternoon to their expressions of opinion in regard to this motion, and all he had been able to deduct as their apparent desire was an organization of the profession in South Africa, and as to that he saw eye to eye with them. But when they went a step further, and said that their organization meant the closing to themselves of what they were prepared to call an architectural profession, he was altogether opposed to their methods.

As a young practitioner, as one who perhaps was ill-experienced in the art of architecture, he had gone to those high priests who in the past had taught them what their art actually was, and he had said to himself that amongst the men in South Africa today who were calling for the registration of the profession, he did not find one whom he could reverence to the extent that he could reverence the masters who were opposed to those ideas.

They had heard a great many platitudes that afternoon about the national and patriotic ideals which were the motives impelling the motion. They must be more frank. The motion was to protect architects; not architecture. Then he had to oppose it. When the chairman said that the motion was for the purpose of having a national architecture in South Africa, he must draw swords with him. He did not believe that the measures which they were now proposing would help one single iota to build up a national architecture, for the reason that he believed that men only came to their fulness by other measures than those they proposed to adopt.

He felt that the need was education, not registration. That was the only method of securing what was essentially needed—the utmost proficiency in the science and sanitation side of their work. He did not, however, believe that the higher and more important part of architecture—the imaginative and inventive qualities in design, without which no man could claim the title of architect—could be brought to the examination test or be stimulated by any artificial protection such as registration.

He remembered an infallible argument against qualification by registration which was used by the late Norman Shaw. He hoped that there would be no difference of opinion as to Shaw's qualifications to speak on a subject of this nature, for he was somewhat alarmed to hear that tradition and the reverence for men like Christopher Wren was swept aside by the advocates of registration.

Shaw said that there was at St. Paul's an excellent model of the cathedral prepared in Wren's time, and that since then most careful measures, drawings of every portion of the cathedral in plan, section, and elevation had been made by students, so that the most complete data existed for the rebuilding of the cathedral should it be destroyed. "Now," said Shaw, "there could be found ten thousand men today who could rebuild the cathedral, and build it better than in Wren's day, but could they produce one man who was capable of designing it?"

Surely the latter alone was the person entitled to be called architect—not the thousands who could build it? They could all be examined in the science of building, but how could they by such measures discover the designer? That capacity for thinking in three dimensions which Wren so eminently possessed was the primary qualification for an architect, and without it there was no right to the title. Since that could not be discovered by examination, he objected to any legal right being given to a man to call himself architect when by no manner of means had he been discovered to possess an actual right. A man's work alone could prove that.

He believed that to attempt what was proposed by the advocates of registration was to legislate for inefficiency and a general level mass of half-baked mediocrity.

Housing in England

THE SECOND READING of the now famous Housing Bill for England occurred in Parliament on April 7. Doubtless, a large number of people in England are taking a greater interest in the fate of this bill than they are in the results of the Peace Conference, so acute is the house-shortage in England and so much does it complicate the industrial problems of the hour. This is the first bill of importance since the Town Planning Act of ten years ago, under which so little rehousing was accomplished,—some thirty-two schemes during the period,—plainly indicating that England is still a long way from having found the solution she has sought.

Dr. Addison, president of the Local Government Board, which body will be charged with the administration of the housing schemes, spoke at great length on the occasion of the second reading of the bill. His figures on the existing condition were wholly inadequate, as he himself admitted, but taking the returns for the period of 1914, it was plain that conditions were seriously defective.

"There were about 3,000,000 people living in overcrowded conditions,—that was more than two in a room,—and in the area covered by the London County Council their return showed 758,000 living under these dreadful conditions. The cost of tuberculosis generated in these slums must be many millions every year. Therefore the question of the slum areas must be dealt with as part of their housing scheme. No scheme which centered solely on building houses on open land would suffice to deal with existing evils. There were 1,800 Local Authorities entitled to deal with housing, but their powers were wholly inadequate to remedy the evils. The cost of acquisition of sites was almost prohibitive in every case, and no solution of the problem could be complete unless they could make the cost of acquisition in some way reasonably commensurate with the value of the land.*

*The bill, as offered, provides for the purchase of land at the price it would bring if offered to a bona-fide purchaser.

"But among other material helps the greatest was the financial help. What the scheme of financial assistance came to was that when a scheme was approved the Government undertook to finance it for a provisional period which would probably be seven years, during which time an annual subsidy would be made on the basis that the charge falling on the Authority of the area should not exceed the produce of a penny rate. At the end of that time there would be a resettlement of the amount, and if it appeared that the annual charge to be borne by the Local Authority was likely to exceed the produce of a penny rate, the annual subsidy for the remainder of the loan would be finally fixed at a sum calculated to cover the excess. What the amount would be depended on the rents obtained."

DR. ADDISON ALSO POINTED OUT that the shortage in houses was both real and concealed. That is to say, the arrears due to war is estimated at about 350,000 houses, while in 1914, there were 70,000 houses unfit for human habitation, and about 300,000 houses which were seriously defective.

Elsewhere in this issue will be found further details of the situation in England, and we have also included with this number a supplement containing a great part of the report of the Women's Sub-Committee on Housing, so interesting are its conclusions, and so clear an idea do they give of what needs to be done in England in order to attain a decent measure of social improvement. Our own problems are grave as well. New York City finds itself in the throes of a housing situation which causes great distress and suffering. New York state is big enough and rich enough to embark upon a far-seeing scheme of housing reform, involving the control of great areas of land where the evils of speculation cannot destroy and corrupt.

What an opportunity to lead the world! Where are the leaders for a real solution of the housing problem?

The Housing Crisis in New York City

In the New York newspapers only the Peace Conference can rival in importance the discussion of rising rents and the suffering of families dispossessed or forced to move into insufficient quarters—committees and commissions without end are trying to put an end to so-called "rent profiteering." The state legislature and the City Fathers have proposed numerous methods of limiting the returns of landlords to a "fair rental." But no one has yet suggested the proper basis for fixing a "fair rental." The landlords try to justify the increased rentals by the claims that for years they have been losing on their properties and that during the war the cost of management has greatly increased. A large part of the present owners have had but little profit from their tenements. Many have lost in the past. They now see their chance to regain some of these losses.

Supplement to the Journal of the American Institute of Architects, May, 1919

Final Report of the Women's Housing Sub-Committee of the Ministry of Reconstruction, Advisory Council, England

Seldom has any report on the housing question offered such a variety of information and dealt in so clear and full a manner with the hard facts, while pointing the way hopefully toward a more tolerable condition of life for those who work for a wage. But in the letter of transmissal, the Women's Housing Sub-Committee plainly states its fundamental conclusion: "*Labour-saving devices and convenient planning will be of little use unless the superficial area of the house is increased beyond that usual in the past. In our investigations we have visited houses where the planning had been carefully considered and many modern appliances provided, but the cramped steep stairs, small landings, inadequate third bedroom and crowded sculleries rendered them eminently unhealthy and uncomfortable for family life. We realise that extra expense will undoubtedly be entailed by giving a larger superficial area, but it is the opinion of technical experts that this expense is not great compared with the advantages obtained. Until the importance of these advantages is fully realised we shall still find bedrooms in which two children cannot sleep without detriment to health, and general conditions which add enormously to the toil of the housewife. With the limitation of houses to ten or twelve to the acre it is hoped that reform in this direction will become possible.*"

We publish herewith, as of great value in studying a question which is now before the whole world, numerous extracts from this remarkable report:

Electricity

The reports of the Coal Conservation Sub-Committee of the Ministry of Reconstruction and of the Board of Trade Committee appointed to consider the question of Electric Power Supply bring out the importance—from the housewife's point of view—of providing a cheap supply of electricity, and we wish to express our entire agreement with their recommendations.

The following extract from the Report of the latter Committee may here be quoted:

"We believe that as a result of the improvements we recommend, and the development which may be expected to proceed from them, the use of electricity for domestic purposes, such as lighting, heating, cooking, and small power, will greatly increase. The cumulative effect of a really cheap supply of electricity, on town conditions in particular, would be most marked. The saving of labour would be great, while the reduction of air-pollution by smoke would result in a lower death-rate from bronchial diseases and phthisis. The Coal Conservation Sub-Committee quote a statement to the effect that it has been estimated that the measurable damage done to property in Manchester and Salford alone, by smoke, amounts to nearly £1,000,000 per annum. This is equivalent to about £1 per head of the population. It is also stated that the results of a recent similar enquiry in Pittsburgh, U.S.A., show a very much larger proportionate figure. Even allowing that only a portion of smoke damage could be avoided, the saving would be large. No doubt changed conditions would only come gradually, but we look forward with confidence to the advantages which a cheap supply of electricity will bring to both the health and the convenience of the community. In view of the fact that the numerous investigations of the Reconstruction Committees, and the proposals made by them, must largely depend for their practical effect upon the supply of cheap power, we would in conclusion emphasise the importance of initiating the necessary legislation with the least possible delay."

We do not attempt here to go into detail, but are certain that when cheap power is available the proper domestic apparatus will be forthcoming. When the house and water-supply are heated and the lighting and cookery done by electricity, half the domestic work now necessary will become unnecessary.

Central Heating for Groups of Houses

We believe that further experiments should be made in central heating, a system which is labour-saving, economical of fuel and heat, and which, if brought into general use, would reduce the smoke in the atmosphere.

We know that objection is sometimes made to central heating on the score of health, but we believe that improved methods of ventilation would obviate any evil effect; in all cases where radiators are used, each one should be provided with a regulator. Considering that central heating is used so largely in other countries and increasingly here in large houses, schools, and institutions, we suggest that further information is required as to the effect of well-ventilated heat from radiators on physical and mental energy. In large schemes it is possible to combine electric lighting and central heating plants, utilising the waste heat from the generator and saving cost in the upkeep by making dual use of the one engineering staff; such a system which has for some years been in use has been brought to our notice. It is also suggested that waste heat from factories might in some cases be utilised.

Little attempt has been made to use radiators heated from a central furnace serving a small group of houses. The chief drawback to so heating a small group is the difficulty of arranging for stoking the furnace. This difficulty, however, is not insurmountable.

Hot Water Supply

In our Interim Report we emphasised in the strongest terms the necessity for a regular and efficient hot water supply in every house. We are convinced that a central system would prove by far the most economical and satisfactory method, and we strongly recommend that it should be installed wherever possible in the new housing schemes. In houses which are not connected with such a system, the hot water supply is as a rule worked in connection with the

cooking range. This method has the disadvantage that to obtain hot water for bath or domestic purposes a large fire is required even in summer, when otherwise the necessary cooking could be done on a gas stove and a fire dispensed with altogether. Moreover, almost as much fuel is required to provide two gallons of really hot water as to provide twenty.

These difficulties, however, appear to be obviated by a new combination water heater and storage cylinder which has been brought to our notice, and which is intended primarily to be heated directly by gas, but which can also be connected with an ordinary boiler behind the coal-range. This water heater is designed expressly for use in working-class houses, its object being to produce hot water very cheaply. It contains two storages, one to hold 5 quarts and one 13 gallons, the idea being that the small storage would produce sufficient water for household purposes, while the large storage would only be used when a bath is required.

The ordinary gas heater is expensive for household purposes because a much larger quantity of water has to be heated than is actually required, and the waste heat is not utilised as it is in the heater mentioned above. Here the "kettleful" of hot water needed for washing up, etc., can be produced for a minimum expenditure of gas. Thus, the small storage can give 5 quarts of water at an average of 130 fahr. in 8½ minutes for less than ½*d.* (at 5*s.* per 1,000), and the large storage can give 12 gallons of water at an average of 130 fahr. in 30 minutes for slightly less than 2*d.* (at 5*s.* per 1,000). We are told by the tenants of houses in which this new heater has been installed that in practice both the large and small quantities of almost boiling water can be procured in an even shorter time. It is possible to fix the gas ring on a pivot so that it swings out from under the heater and can be used for cooking purposes. This heater can also be operated from an oil-lamp and used where gas is not available.

Newest Coal-Ranges

We have inquired into the working of some of the newest coal-ranges at present on the market. None are truly economical of fuel or labour, but the one we consider best for a family house has a grate, arranged on fuel-saving principles, which may be used open or practically shut. The boiling-plate and oven are of convenient height, both being so placed that stooping is unnecessary. Under the oven is a warming chamber. All fuel is retained until burnt to a fine ash, and the arrangement of the ash receptacle is excellent, no dust escaping into the room. The draught is so arranged that the combustion is slow, and a good supply of hot water can be obtained for sink and bath. We are assured (but experiments should be made to verify this statement) that one or two radiators can be served from the existing boiler, but this course is not advised when the water is hard. However, at small extra cost, a second boiler may be fitted to serve the radiators. The height of the oven is a point that requires attention. The low-placed ovens in general use in the Midlands and South are labour-making and back-breaking, while the high oven used in the North is labour-saving. In houses and flats for small households the combined sitting-room grate and cooking-stove is useful. This can also provide hot water for bath and sink and heat for the linen cupboard. To be really satisfactory this stove needs careful setting, and where complaints of it are made they generally prove to be due to failure in this respect.

Gas Stoves

Where such a combined grate and cooking-stove is installed in the living-room a gas cooking-stove should also be provided in the scullery. The usual form of gas cooker is somewhat wasteful of gas, but experiments have been made with a view to producing improved types. In one which was brought to our notice, a flat boiler was attached to the back of the stove, in which a small quantity of water could be heated while the cooking was being done, without any extra expenditure of gas.

Windows

The chief function of a window, in addition to ventilation, is to provide for the passage of light. For this reason, and also to facilitate cleaning, the divisions between panes should be as slight as possible, and, on this account, painted steel framework has much to recommend it. In no case should coloured glass be used.

There are two principal types of windows—the sash and the casement. On the whole the sash-window is the most favourably regarded, and is especially suitable for exposed sites, but for æsthetic reasons the casement is sometimes preferred, particularly for living rooms.

The Sash-Window

The sash-window is the most easily regulated and it is fairly easily cleaned, provided each sash is of a moderate size. A device to simplify cleaning is found in a newly invented "safety sash," by means of which the sashes are made to open inwards for cleaning as well as to run up and down for ventilation. This arrangement also minimises draught.

Ventilation is facilitated by the insertion of a ventilation board below the lower sash—air then passes in between the meeting rails of the two sashes. An improvement on this is to have the lower frame so made as to project above the bottom of the lower sash when closed. There is then no danger of draught or the entrance of rain when the sash is left open. This device could be adopted at little extra cost and would be of great advantage, especially in bedrooms, as constant ventilation could be obtained without draught.

It is desirable that sash windows should be divided into several panes, as this gives a more pleasing effect and helps to preserve the scale of the building. It also makes replacement of broken glass less expensive.

The Casement Window

Some persons consider the casement window more pleasing in appearance than the sash, but it is seldom impervious to weather, though recent experiments have produced some improvement in this respect. The framework needs to be well made and of good material; undue economy in the fittings and construction is very shortsighted. This type of window cannot well be left open in wet and stormy weather and should therefore be provided with a push-out fanlight at the top. Casements are usually troublesome to

clean, but it is possible to overcome this difficulty if the windows are arranged in sets of pairs, and every window made to open. The two windows forming a pair should open in opposite directions, the left-hand window to the left, and the right-hand window to the right.

There are various devices on the market for rendering the casement window more easily cleaned. The simplest and cheapest seems to be a form of double hinge whereby the window can be made to open at a sufficient distance from the framework to enable the cleaner's arm to pass between the window and the frame. The central pivot casement solves the cleaning difficulty completely. It is, however, open to the objection of creating too much draught in small rooms.

Whatever type of window is employed, it is important that it should reach to within 9 inches of the ceiling. This avoids the formation of an air-pocket in which stale air collects. In the living-rooms, at any rate, the sill should also be low enough for a person sitting in the room to see out of the window. Further, it is important to consider carefully the proportion of window surface to wall, especially in small rooms.

Chimneys

There is no doubt that the difficulties in arranging for dependable ventilation in house-building are great; but considering the importance to health, it is advisable that the matter should receive greater attention from architects and builders and others concerned than has as yet been afforded it. It is important to remember that the natural ventilation of small rooms without draught in the colder months of the year is almost impossible.

The ventilation of the bedroom without a fireplace has always been a difficult problem. We accept the recommendation given in the Report of the Housing (Building Construction) Committee as the best solution, namely—"To provide an air-flue in an adjacent chimney-stack and connect to a ventilator at or near the ceiling level of the bedroom."

The ventilation of the staircase is important as on it depends the successful ventilation of the house as a whole. As we have said in our Interim Report, an opening window giving direct light and ventilation to the stairs, at such a height that it can be easily opened and cleaned, is much preferable to a skylight or trap-ventilator.

Artificial Lighting

Wherever electricity can be supplied sufficiently cheap, it is to be preferred as cleaner and more convenient than gas. Improvements in gas-lighting have been many within the last few years; burners and mantles have largely eliminated what was formerly harmful and have produced better and cheaper lighting. But there is no doubt, from the housewife's point of view, that electric lighting is bound to be preferred to gas if the cost is no greater. It would be advisable, in view of the possibilities of labour-saving to the housewife and of economy in house decorations, not only to bear in mind the coming application of electricity to housewifery, but to press for immediate action in the matter on the part of the Government. All new building should be carried out with these possibilities in view.

Access to gas and electric-light fixtures should be as easy as possible, but exposed pipes, tubes or casings should be avoided as dust-harbourers. The gas-meter shelf is a frequent vermin harbourer; it should be made of concrete in preference to wood. The position of the fittings, whether for gas or electricity, should be carefully chosen in relation to the occupations pursued in each room. In the living-room, good light should be shed both on the table and on the range or fireplace, and fittings should be provided both in the centre of the ceiling and on the wall to the left of the fire. In the parlour, a central light would generally be sufficient, but where electric light is installed a plug in the wall might be added. The artificial lighting of the scullery is of great importance in view of the work done there. A good light to the left of the sink is, generally speaking, the best position. In the bedrooms the best light should fall upon the dressing-table and the position of this must necessarily depend upon the size and shape of the room.

Walls

In dealing with walls, one point of primary importance is to secure an interior wall-surface which is not liable to condensation and which is hard enough to resist rough usage. A second point is the selection of a distemper or paint which can be washed without disturbing the colour or spoiling the surface. It should also be remembered that light colours add to the apparent size of the room. There are certain paints on the market which seem to fulfil those conditions and we consider that, although their initial expense is somewhat greater than that of ordinary cheap distemper, the fact that they are more durable and can stand the wear and tear of scrubbing makes them more satisfactory and cheaper in the end. Some of these paints can be obtained in varied and artistic colourings with a smooth-matt finish which gives them a restful and pleasing appearance. We consider them eminently suitable for the walls of living-rooms, bedrooms, etc.

Scullery, Bathroom, Larder, Lobbies, and Water Closet

For these, tiles or glazed bricks are ideal. The initial expense in many kinds of white brick is heavy, but a brown, salt-glazed brick is cheap and satisfactory. As an alternative for lobbies and bathrooms, we have seen some high-gloss paints which have the appearance of an enamel finish while the cost is only that of an ordinary oil-paint. They are said to be durable and are certainly decorative. An interesting experiment with the walls of sculleries is being made in a new housing scheme at Braintree, in Essex. The houses are built of concrete, on the "unit" system, with cavity walls. The inner concrete wall is left entirely untreated in the case of sculleries, etc., except that all crevices are filled in and the walls smoothed off. Though the appearance is slightly cold, it is solid, clean, and dignified, being not unlike the brown stone walls found in Warwickshire houses. It is not so good as glazed bricks or tiles, but nevertheless it has much to recommend it, especially on grounds of sanitation.

We have made enquiries into a material much used for walls in Scandinavian countries, the particular merit of which lies in the fact that it can be washed down with a

hose. We understand that it is customary in Sweden for the housewife once every month or so to move the furniture into the middle of the room, cover it with a tarpaulin and wash down the walls, the water being carried off by means of a small gutter in the corner of the room connected with a pipe in the outer wall. We are told that this material is obtainable in the lightest and most beautiful colourings, and that it is entirely permanent. Though it can only be supplied from America at present, samples have been sent for and it is hoped that they will be available shortly.

Corners

We have received a suggestion for the facilitating of rounded corners in rooms which appears to us worthy of attention. Instead of the rounded corners being applied by the plasterer, it is claimed that rounded bricks could be used for this purpose, and, obviously, this could be done still more easily in the case of concrete houses.

Floors

Where timber is available, we have no hesitation in recommending wood-block floors as by far the most desirable in the living-rooms, but a warning should be given to tenants against the common practice of placing linoleum on block floors, as this induces dry rot. It seems, however, that for some time, at all events, timber will be practically unobtainable, and the best substitute appears to be a composition flooring. Some makes have not proved entirely satisfactory, but an improved form has recently been produced as a result of experiments carried out by Mr. Seebohm Rowntree on behalf of the Building Materials Research Committee, and has been tried in various model cottages and other buildings at New Earswick and Braintree. It is not so cold as many compositions, can be easily polished, and its cost compares very favourably with that of other preparations of the same nature. It is made in two varieties, one, hard, suitable for sculleries, offices, etc., the other softer and warmer for use in living-rooms and bedrooms. It is still, however, in the experimental stage, and it should be possible to obtain more pleasing colours than have been produced up to the present time.

For sculleries we strongly recommend the use of quarry tiles.

Sink

The sink should be deep, of glazed stoneware, and fitted with a plug and waste-pipe. It should not be placed too low, nor boxed in, and should be supported by a metal or concrete bracket and surrounded by glazed tiles, glazed bricks, or other glazed materials. It should be situated in a good light but not in a direct draught. Taps for both hot and cold water should be fitted, and so arranged that pails can be easily filled under them. A double sink has much to recommend it. Two draining-boards are constantly asked for, and these should be grooved and slightly sloped. If one draining-board is hinged, a washing-tub can be placed under it by the sink, and filled from the sink taps by means of a length of rubber tubing. This arrangement saves a considerable amount of labour.

A concrete or slate slab should be provided in the larder in addition to wooden shelving, and a flap shelf is also useful.

Gardens, Playgrounds and Social Centers

From the point of view of the housewife, the question of the health of the family must predominate over all others. We are convinced that this involves not only careful planning within the house, but also careful planning of the whole neighbourhood in which it is situated. We strongly deprecate any idea that it is possible or desirable to treat Housing as a separate matter from Site and Town Planning, and to deal with the modern town cottage as a separate unit. Only through such careful planning can we make a real advance towards building up the communities of the future, whether we are considering their needs from the housewife's and mother's point of view, or from that of the citizens in general.

While it is, of course, urgent for the convenience of the housewife that children of all ages should have provision for recreation near the home, we realise that the matter is still more urgent in order to raise the low health-standard of our population. The effect of lack of fresh air in causing phthisis is well known. We also note with interest the statement in the Report on Rickets of the Medical Research Committee (p. 94) that "inadequate air and exercise seem to be potent factors in determining the onset of rickets." From the evidence brought together in the Report it appears that rickets is most often found when children are not taken out-of-doors at all or only to a small extent, and that in the garden cities in which special enquiries on this point were made the number of cases was inconsiderable. "The few families [*i. e.* in the garden cities] where mild rickets was found were noticeably the ones where the least advantage was taken of the facilities for enjoying the fresh air." (*Ibid.* p. 73.) The far-reaching effects of rickets on health is now generally recognised. It is for this reason among others that we heartily welcome the provisions laid down by the circular to Local Authorities that public grants would in future be limited to schemes with not more than twelve houses to the acre. We desire to put forward an urgent plea that this provision should be strictly enforced, and that Local Authorities and others should be encouraged to provide, by careful site-planning in connection with all housing schemes, that the space thus secured should not merely be given up to provide private gardens, essential as these are, but that a part should be devoted to common recreative use by children and adults.

Gardens

It is greatly to the convenience of the housewife that a small concreted space be provided close to the house as a stepping-stone to the garden proper. Divisions between gardens should be marked by hedges, not walls or pailings, both for economy and appearance. Further, all households do not need an equal amount of land, and the common garden-suburb method of giving all the houses small gardens, with additional allotments immediately behind, which can be taken by those who wish for them, has much to recommend it. Part of the space saved by arranging smaller private gardens can also be used for common playgrounds.

Playgrounds

While the provision of a place for the children to play in, apart from the carefully cultivated small garden, is a

matter of first importance to the convenience of the housewife, it is much more than this. The working-class child too often has only the alternative of staying indoors or of playing in the street with all its dangers and shortcomings. Again, for older children and young people, organised play is an important item in development, but at present the provision for this is most sadly insufficient. A common standard for school playgrounds in England is 30 square feet per child, which gives space for drill but not for games, whereas in America, where much more consideration has been given to children's playgrounds, we find that 300 children per acre (*i. e.*, about 145 square feet per child) is considered to be the "saturation point" for play.*

Playgrounds for Young Children

We would urge that a convenient form of playground for small children is provided by planning a large group of cottages so that the houses back or face on to a common square beyond the gardens, and it is possible for the children to have direct access from the gardens to the square. Simple provision could be made for small children here by a sand-place where they could dig and play. The older ones might have their "own" gardens round the edge. In such small playgrounds regular supervision would probably not be necessary, but a weekly gardening class might be organized.† Often a mother or elder sister might be there to arrange simple games, and the sand would be a constant attraction. It has been pointed out to us by Mr. Raymond Unwin, in reference to such playgrounds, that "any bit of unevenness in the ground, a hole or a mound, an old fallen tree, a few bricks, or such like accessories are very helpful for little children's play; a few old trees for shade are very valuable, and a little shelter."

Playgrounds for Older Children

The older children have further needs for recreation and exercise which must also be met. It is a commonplace that children between the ages of 11 and 16 instinctively need the play companionship of other children, without which they suffer from undue repression and do not develop healthily. These playgrounds should be within a short walk of home. The home requires to be supplemented by the community, not only for "schooling" in the old sense, but for "education" in the better sense, which means full development of mind and body, *i. e.*, health.

Garden Suburb Developments

A few playgrounds have been set up by Local Authorities in England, but no attempt to reach any particular standard in reference to the needs of the district has been made so far. The movement is only beginning.

We desire to pay a tribute to the very useful pioneer work which has been done by the various garden suburbs which have been planned either by private individuals or associations, but even they are still without a very clear and definite policy in this direction. In some cases it seems obvious that if the societies had been organised to a larger extent by women more provision would have been made for the needs of children as distinguished from those of adults. It is all the more necessary, therefore, that this important question should now be considered so that the opportunities afforded in the preparation of the new State-aided housing schemes should be used to the fullest advantage.

Social Centers

Where the coöperative or copartnership housing movement, which has developed so many garden suburbs, has taken the greatest forward step has been in the organisation of a central club to initiate and manage all recreational and social activities. Such a club provides indoor as well as outdoor recreation and interests for the neighbourhood, for both children and adults, and makes a real neighbourhood center. In America such neighbourhood centers have been developed as a part of the playground movement in thickly populated towns. In England, however, they have been developed as a part of these new housing schemes. It should be possible to develop such centers, even when the scheme is not a coöperative but a municipal one, and they constitute a further important advance made by private enterprise which should not be omitted from municipal schemes. The rise and development of the whole garden suburb movement in England and Wales is due to private initiative, and it is of the greatest importance that Local Authorities, in their schemes, should embody as much as possible of this social side of the work.

Replanning of Built-up Areas

The development of such a standard for recreation in new housing schemes should lead the way to a replanning of older centers to secure the same advantages. We shall have to deal not only with the replanning of old houses for modern needs, but with the replanning of old districts from the same point of view. There are at the present moment a large number of condemned streets in crowded urban districts. It is hoped that when these are demolished some of the ground thus cleared may be reserved for playgrounds and open spaces.

Country Villages

While so far we have dealt with the matter with reference to towns and suburbs, we wish to point out that such provision for recreation is no less needed in country districts. There are many villages in England where there is nowhere but the roads for children to play, and we know the toll taken by motor cars in peace time largely in consequence of this.

In one village we have been told that the children's custom was to play at a roadside corner at the bottom of a steep hill down which motor cars often came; the usual difficulty of finding land has been met here by draining an unused pond which now makes a satisfactory playground, showing what could be done even under the difficulties of the existing land system.

In our villages even more than in our towns a careful and well thought out organisation of the resources available for social and educational development is required. We understand that this problem is being approached by the Village Clubs Association, and we would urge that a normal minimum of such village equipment should include:

(1) A group of workshops used in connection with the

*See Recreation Survey of Milwaukee, Wisconsin, 1912.

†Before the war a system of children's gardens was on foot in the Hampstead Garden Suburb, and a weekly gardening class was held.

school and for continuation school work as well as outside it.

(2) A system of school gardens and gardens used in connection with continuation work.

(3) The use of school buildings for lectures on rural subjects by lecturers under the County Council in connection with continuation work.

(4) School shower-baths used by adults after school hours and open-air swimming-bath where possible.

(5) A village hall, preferably part of the school buildings, furnished with a stage and small rooms behind for use as dressing-rooms, the hall to be used for plays and for meetings.

(6) A room in the school buildings fitted as a gymnasium and used after school hours by older boys and men, and on other days by girls.

(7) A reading-room, also part of the school buildings, in connection with the country town library and containing a permanent library for children.

(8) The use of schoolrooms for such organisations as—

(1) Boy scouts and girl guides.

(2) Meetings of clubs and societies for adults.

(9) Adjoining the school there should be a café with garden where light refreshments can be had and where the village band should play and dancing be held at least one evening a week in the summer. In the winter the dance could be in the village hall. Here also folk dances and songs could be taught in the winter.

(10) Additional instruction in craftwork not given by the resident craftsmen should be provided under a County Council's scheme during the winter, as well as lectures on general subjects.

(11) A motor transit system which will enable people to share to some extent in the fuller educational and social possibilities of the market town. The social centers to be developed there will necessarily cater to some extent for the needs of the countryside, as well as for those of the immediate vicinity.

Communal Washing Arrangements

Washhouses common to a group of houses and used by women in rotation are not popular, and it is improbable that this type of communal washing arrangement will meet with much success.

The objections are:

(*a*) That where women have to wash in rotation, some would be obliged to take the last days of the week; this causes great inconvenience as the weekly wash should be completed by Thursday at latest.

(*b*) That while the majority of the women may be clean and tidy in their work, one or two may be of a type which makes working after them both difficult and disagreeable.

It is true that in some groups of tenement flats in London an arrangement of communal wash-houses on the roof is found to work smoothly, but in these cases the inmates of the flats are carefully chosen and, since it is hoped that tenements will find no place in the new housing schemes, an arrangement which can never prove to be universally acceptable appears to be unworkable and, in view of better developments, undesirable.

Laundries Attached to Baths

In many districts laundries are found attached to public baths. To these the women bring their washing and wash in separate compartments. These laundries are largely used, but the objections to them appear to be—

(*a*) The labour involved in carrying the washing to and fro.

(*b*) The difficulty of leaving the home where there is a young family.

The "Bag-Wash"

A scheme has been suggested which, if developed, might prove to be the solution of the difficulty by taking the washing out of the home, bringing the cost within the purse of a working-class family, and saving the housewife all heavy laundry work.

The scheme is as follows:

(1) The establishment of laundries to be worked entirely by electricity and capable of being run by a very small staff.

(2) Washing to be collected from, and returned to, each family, weekly.

(3) The washing of each family to be kept in special bags marked with a number.

(4) The washing to be done in an electrical machine, wrung with a hydro and "rough dried;" ironing to be done in the home.

(5) Each bag to be dealt with in its separate compartment in the laundry, thus avoiding all risk of loss or confusion with other bags and rendering unnecessary the separate marking of each article in the bag.

It is claimed for the scheme that, while the laundry work would be done efficiently and with the minimum of labour, the cost would be very small; it is estimated that the cost of each bag washed would roughly be 7*d.* and that for this sum each bag could contain 150 articles. An experiment might well be made with this scheme and, to ensure success, it would be well for it to be undertaken by the Municipalities, thus giving the families themselves some share in the control.

Communal Cooking

The ultimate solution for communal cooking arrangements would seem to be the development of schemes for supplying varied and wholesome cooked foods at a reasonable price either by municipal, coöperative or private enterprise. It does not seem probable that communal kitchens in which women could come in and cook for themselves will ever find favour, though, if such an arrangement were desired by a group of women, it would be worth while making the experiment.

The Public Cafe

The transformation of the public house into the cheap restaurant should be a great assistance to communal life, especially in rural districts. The returning soldiers will have become familiar with the sight of the worker and his family sitting under the trees in foreign cafés enjoying a cheap and well-cooked meal, and it is probable that, if those engaged in the work of social reconstruction will interest themselves in this idea, the results will be

(*a*) A vast improvement in our public houses.

(*b*) A source of res tand enjoyment for the working women.

Communal Holiday Homes

In view of the difficulty experienced by working women in obtaining a real rest and holiday, some experiment might be made in the way of communal holiday homes. These might take the form of:

(1) Houses in which mothers could, without anxiety, leave their young children while they themselves take a holiday with their husbands and elder children. The rest to the mother would be very great and, though the idea might not at first find favour, it might come about as a development of the nursery school.

(2) Large houses in seaside or country places to which groups of working people might go for a holiday, and which would prove a far less expensive and more restful form of holiday than the inadequate and often uncomfortable "lodging" accommodation which is at present the only possibility for the worker's family. Holiday homes have already found a place in the coöperative movement, and the idea is capable of interesting development.

The whole idea of communal living is, as we have said, new and untried in this country, but the widespread success of coöperative buying and selling seem to point to the fact that, given the coöperation of the workers themselves, there is immense scope for the spread of communal living, and one of the most important results of the war has been to demonstrate the advantages of combination and the wide possibilities of communal life.

Conversion of Existing Houses into Working-Class Flats

In Paragraph (*c*) of our terms of reference we were asked: "To consider, in relation to the conversion of middle-class houses into tenements for the working classes, the requirements which are necessary to secure that the health and convenience of the tenants are properly provided for."

For this purpose an investigation was undertaken in a London district where the majority of the houses were built originally for middle-class tenants, but are now, almost without exception, occupied by working-class families. This alteration in use has resulted in a deplorable state of affairs which is typical of many other districts in London and other large towns. In almost every case a separate family lives on each floor and this change from house to tenements has been made without any kind of structural conversion of the buildings. The most glaring shortcomings in this type of housing are an inadequate supply of water-taps, sinks, etc., insufficient scullery and water closet accommodation, and an entire absence of baths. One house visited had only one water closet for four families; there were four taps, one for each floor, either on the landing, in the area, or in the back yard, but there were no sinks. Further, there is grave overcrowding (none of it illegal) through lack of sufficient bedrooms, coupled with inadequate living-room accommodation.

The question of the possibility of structural alteration to give better accommodation in these houses was considered and various alternative methods of conversion were discussed. In the light of the investigation made we have reluctantly come to the conclusion that, since conversion must displace permanently some of the population, any alteration at the moment would only tend to make conditions worse in an already overcrowded neighbourhood.

We are of opinion that the conversion of middle-class houses into flats for the working class is only to be recommended under the following conditions:

(1) Where other accommodations can be provided for the displaced tenants or where houses suitable for conversion are already standing empty.

(2) Where the main structure of such houses is in a thoroughly good condition.

The one point in favour of conversion is the space and airiness which the usually larger rooms provide, but even where this advantage is gained and the above conditions fulfilled, we feel that conversion is still a makeshift and that the standard of accommodation provided by it is bound to be lower than that which we consider entirely satisfactory. The general tendency of housing development in all large towns should be one of decentralisation. If new building is carried out in the surrounding districts on garden suburb lines, people will move outwards and the congested areas in the center can then be demolished. We must guard against the danger of patching up the houses in these areas and thus perpetuating the slums which we wish to see disappear.

We think, however, that the urgency of the housing problem is such that no means of relieving the general shortage and improving the prevalent conditions should be neglected, and we therefore recommend that conversion be undertaken in certain districts where suitable empty houses are to be found.

Types of Conversion

There are three principal methods of converting houses into flats:

(1) By building back or side or combined back and side additions. In the additions, the extra sanitary arrangements and sculleries can be provided. This method is only satisfactory when the houses are of so wide a frontage that the addition does not block out air or light from the windows, and as a large number of existing town houses are of the narrow frontage type arranged in terraces it is seldom practicable.

(2) By running two or three houses into one and turning each floor into one or more flats. This can sometimes be achieved satisfactorily but is comparatively costly as it necessitates the removal of staircases and the extension of the flooring in order that the space thus gained may be used for extra rooms. Often, too, it is impossible to get a sufficient number of rooms of adequate size for a family.

(3) By dividing a house into two or more maisonettes, each comprising one or two floors. This is often quite a satisfactory method, and is especially applicable to the semi-basement type of house.

Various cases of unsatisfactory conversion have been brought to our notice. Sometimes large, airy rooms have been divided into two by means of thin wooden partitions which would be a source of danger in case of fire, and also attract vermin. Often no proper means of ventilation have been provided. We feel it urgent that a much higher stand-

ard should be required by Local Authorities in sanctioning any plans for the conversion of existing houses.

In conclusion, our investigations into this subject convince us of the necessity for certain legislative reforms to which we would call attention:

(1) The compulsory published registration of landlords.

(2) Some system of sanitary certification by the Medical Officer of Health before a house designed for one family is allowed to be occupied by more than one.

Management

We consider that the management of housing schemes is a subject of great importance. In our investigations we have been impressed by the many advantages that good management brings both to tenants and landlords. Where modern methods of house-planning and labour-saving devices are adopted, the success or failure of these improvements often depends upon the tact and ability of the manager.

A good manager should always be ready to show the new tenants how to make the best use of their house; he will often have opportunities of encouraging or organising communal action, and by the careful selection of suitable tenants for the different cottages in his care may do much to prevent overcrowding. One of the worst evils arising out of the present housing conditions is the fact that landlords refuse to accept as tenants persons with large families. It is essential to meet this problem by providing sufficient houses with four or five bedrooms and reserving these for large families. It would then rest with the manager to ensure that these houses are used for the purpose for which they are intended. In these tasks, as well as in the routine work of rent collecting, it will largely be the women tenants with whom the manager will have to deal, and we are therefore of opinion that the best results can often be obtained by employing a trained and educated woman in this capacity.

In the new schemes, whether carried out by municipalities or public utility societies, we strongly recommend the formation of tenants' committees, which will represent the interests of the tenants, and whose coöperation may also be found to be of assistance to the landlord or manager.

Conclusion

In conclusion we would point out that our recommendations are based on the results of extensive enquiries into the wishes and requirements of the working woman, carried out both by us and by various associations throughout England and Wales, and we can say with confidence that our recommendations embody only such improvements as are demanded by working women themselves.

Owing to the large number of detailed recommendations contained in our Interim and Final Reports, we have found it impossible to draw up a complete summary. We content ourselves therefore with a recapitulation of the main recommendations, contained in our two reports, on points which we regard as of fundamental importance.

Recommendations

(1) That the superficial area of the house should be increased beyond that usual in the past.

(2) That a high standard of material and workmanship should be an essential condition in the new housing schemes.

(3) That the wide frontage type of house should be adopted whenever possible as giving more air, light, and sunshine, and allowing more convenient planning than the narrow frontage type.

(4) That in planning a house the most careful consideration should be given to aspect—in particular to the aspect of living-room and larder.

(5) That the planning of the neighbourhood in which the house is situated should be considered equally with the planning of the house itself; that such planning should include provision not only for private gardens but also for playgrounds and social centers; and that full attention should be given to the organisation of the resources available for social and intellectual development.

(6) That a parlour should be provided in almost all cases in addition to the living-room, but that its provision should not detract from the size of the living-room.

(7) That the provision of a bath in a separate bathroom is an essential in every house and flat.

(8) That an adequate but simple system of hot and cold water supply should in all cases be provided and connected with the bath and sink.

(9) That increased attention should be paid by architects and builders to the principles of ventilation as applied to houses, and that in view of the possibility of central heating coming into more general use the question of ventilation in rooms heated from radiators should be specially investigated.

(10) That a cheap supply of electricity for domestic purposes should be made available with the least possible delay.

(11) That the published registration of landlords should be compulsory.

(12) That some system of sanitary certification by the Medical Officer of Health should be made compulsory before a house which is designed for one family is allowed to be occupied by more than one.

(13) That an improvement in the water-supply of country districts should receive prompt attention from the Government as a matter of national urgency; that pending such reform all new cottages should be provided with an internal water-supply, even if this has to be obtained by means of a pump.

(14) That where there is no drainage system, the number of cottages to the acre should be limited to four.

It may be pointed out that recommendations (1–9) can be carried into effect without fresh legislation. In order that recommendations (10–14) may be carried out, either legislative action or amendments in local by-laws are required, and we urge that the necessary measures should be taken without delay.

THE HOUSING CRISIS IN NEW YORK CITY

After a careful study of the situation, the Housing Committee of the State Reconstruction Commission has concluded that it cannot be met by any attempt to limit rentals.

As the Housing Committee diagnoses the case, rising rents are only a symptom. The disease is lack of sufficient livable houses. The causes of the present trouble are deep-set and rest fundamentally with our whole system of housing. But the emergency is so pressing that the Reconstruction Commission is, for the time being, postponing its attempt to deal with the roots of the problem.

New York City will soon be without sufficient houses to care for its ever-increasing population. At present, in the city of almost 1,000,000 apartments, where normally 5.6 per cent of the apartments are without tenants, there are only 2.18 per cent vacancies. These are mainly in the old-law tenements, which are poorly lighted, unsanitary, practically unlivable places. They are principally in those parts of the city which are inhabited by the foreign born. There has been no immigration for a number of years; in fact, a great many Italians, as well as citizens of other allied countries, have returned to their own lands. Their former homes have remained unoccupied. Why are there so many people in the Bronx and upper Manhattan complaining of rising rents and lack of houses when these apartments are vacant?

So that the public may understand why those who have left the slums of New York City will not return to them, the Housing Committee of the Reconstruction Commission is conducting a novel survey. It is being assisted by thirty organizations, such as neighborhood houses, women's clubs, and groups of the people of the various neighborhoods. They are making an intensive study of characteristic blocks in the various congested parts of the city. Each association is making the survey of a single square block. Every tenement is being visited and a record made of the number of persons dwelling in each apartment, the wages, present and past rentals, as well as the psychological reaction of the tenant to the conditions in which he lives and the treatment which he is receiving from the landlord. Notes are made as to the general condition of the apartment as well as the type of management, whether it be by the owner, an agent, or by a speculator who has leased the property with hope of quick gains. The Tenement House Department is supplying the informational data on the tenements, how they are lighted, ventilated, heated, how they are built. The officers of the Health Department are giving records of disease and death in the blocks studied and the charitable organizations are supplying the data that they have collected in regard to poverty in these regions. All these organizations, and departments of the Government, as well as the visiting nurses, the students in statistics and social science of the universities, and numerous other trained and volunteer workers are coöperating with the Reconstruction Commission to bring together and arrange the material from which can be drawn a complete picture of life in these thirty blocks in the congested parts of New York City. These surveys will show whether the scarcity of houses and the raising of rents, which is forcing so many families into poorer quarters, have resulted at the bottom in discontent, the lowering of the standards of living, or in more than the usual overcrowding. It is hoped that they will serve further, not only to bring together information on which to base plans for a proper type of housing, but that above all they will arouse the public to the need of improving living conditions. An attempt will be made to discover, as far as possible, the relation between housing, health, morals, happiness, and the general welfare. The principal object of the survey is educational. For it is apparent that no change of lasting value in our methods and standards of housing can be secured unless there is an intelligent public understanding of the object of change. The first step toward a better type of housing must be an understanding of existing conditions and the causes of these conditions. There is but little question that all of the organizations and individuals who have taken part in this democratic survey will be united in the decision that when we do start building houses again we must build sanely. They will know and insist that housing is a social, not a financial, problem.

The time when building is put under way cannot be long postponed, for New York faces an actual housing shortage. The only vacant houses are in practically unlivable tenements erected before the new tenement law of eighteen years ago was passed. Next winter many of the working people will be forced to move away because they cannot afford to pay the rents. Outsiders will be discouraged from coming to New York and business and industry will be hampered because of lack of sufficient workers. New York will experience the same labor "turnover" and slowing up of industry as did the towns that made munitions and ships during the war. The Government found that the only answer to the difficulty of these people was homes for the workers, sufficient homes, good homes. New York's answer to present housing difficulty must be the same. But here we face a dilemma. The speculative builder is frightened at present and refuses to build. He is afraid, not of past, but of future competition. He fears that the prices of building may decline. On the other hand no governmental aid can be secured this year soon enough to meet the emergency. It will probably be some time before national legislation to assist housing can be passed. State aid in New York is only possible through a constitutional amendment, the passage of which would require three years. But the future welfare of the city demands that the building of houses be started at once.

The Reconstruction Commission believes it has found a way to break the dead-lock and to solve our temporary housing problem by supplying more houses. But it must have the support of the citizens. CLARENCE S. STEIN.

Welfare and Housing. By J. E. Hutton. London, 1918. Longmans, Green & Co. $1.50.

While largely a war narrative, since the writer was manager of the labor and catering department of Vickers, Ltd., as well as a member of the Food Investigation Committee of the Ministry of Munitions, this book contains information of value as related to the planning of dormitories and catering departments. The experiences and theories narrated shed much light upon the paternalistic method of dealing with the labor question. There are chapters on Food Values, Hospital Service, Amusements, and a brief one on Permanent Housing, briefly descriptive of Vickerstown.—B.

The Housing Question in Other Countries

Garden Cities as a National Housing Policy in England

In the memorandum submitted by the Garden Cities and Town Planning Association (England) to the Local Government Board, it is urged that the garden-city principle be adopted as the basis of a national housing policy. The Association says:

"The fact that the provision of workmen's houses has now definitely been accepted as a national responsibility, brings within reach the formation of a settled housing policy for the country as a whole. That policy cannot, however, be formed so long as housing is upon a purely emergency basis; it requires to be considered in relation to the problems of town-planning, transit, and the location of industry, with which housing is inseparably connected. We believe that, in view of the nature of the problem, it is of the first importance that no time be lost in preparing the foundations of a sound policy for the future.

"Sound housing finance requires that the increased land-value produced by development should be enjoyed by the state jointly with the Local Authority; the increased land value would then set off against the loss incurred in building. This advantage can only be secured by building on land of agricultural value; and that, we suggest, can only be done by a combination of housing and industrial development organized on a large scale."

They propose the establishment of a national town planning commission with wide powers. Such a commission should be actively at work in every state in the United States at this moment, preparing to formulate definite principles by which to regulate both housing and industrial developments. Or shall we remain always from fifty to a hundred years behind in profiting from the lessons taught by English experience?

A Sensible Housing Law Proposed for England

The deputation from the Society of Architects (London), in waiting upon the Local Government Board to urge that competent architects be employed to handle the vast housing schemes now developing in England, in preference to having the work done by the Government Office of Works, advanced arguments which it is not necessary to repeat here. One of them, however, is well worthy of special comment. It was pointed out by the deputation that "Restrictive by-laws (tenement house laws) could safely be scrapped if the Housing Schemes were placed in the hands of competent architects. The only essential regulations required for Rural and Urban Districts were, (*a*) proper provision for sanitary and hygienic requirements; (*b*) the prevention of and escape from fire; (*c*) that all buildings shall be constructed of sufficient strength and stability. The Society's proposal was that new building laws should be drafted by a Joint Committee of representatives of the Society, the R. I. B. A., the Surveyor's Institution, and the Institution of Municipal and County Engineers. Any dispute on the laws to be referred to a permanent tribunal consisting of the Joint Committee with the addition of a Chairman appointed by the Local Government Board."

The day of restrictive legislation as a cure for housing ills is passing very fast. While it operates to prevent one kind of evil, it encourages the spread of another, and there is already grave question whether the net results from the latter are not worse than from the former.—B.

A National Development Plan for England

In his presidential address to the Town Planning Institute (London), Mr. S. D. Adshead dwelt with great emphasis upon the necessity for basing the many housing schemes in England upon right principles of town-planning and upon the equally important need for having these schemes studied with relation to the whole problem of the future development of the country. To this end, he proposes the making of "a Development Plan for the whole of England." He states that the question of scientifically locating the 300,000 houses to be built is being evaded, and that, as a consequence, the mistakes will become very serious as the work goes on.

Mr. Adshead's remarks are quite in line with a recognition of the necessity for enlarging our town-planning vision within the near future, until the nation is made to balance its books, take account of stock, and make plans for its physical development which shall not permit unrestricted individualism longer to make heedless speed with heedless waste and destruction as a result. It is time to take the large view and the long view and to gain an intimate understanding of the interdependence of our national welfare and progress. It is time for our states to consider a state plan, based upon the control of the location of industrial undertakings of every kind. The zoning principle must now be carried forward another stage.

Writing on "The Public Control of the Location of Towns" in the *Economic Journal* (England), for December, 1918, Mr. Edward Ormiston has the following to say:

"Theoretically, the best situation for industry is a relatively small town with a good technical equipment and a varied population, and, above all, with industrial areas planned in relation to means of transportation. Not many such places are to be found. They cannot arise spontaneously, because to give them a reasonable start requires concerted action on a large scale. Under medieval conditions a handful of mechanics, feeling the pinch of town taxation or guild tyranny, could migrate to a free-trade village like Birmingham with prospects of success, and, others following suit, a new center could easily arise. Under modern conditions a piecemeal migration is not possible. The very interdependence which makes modern industry so productive operates to prevent its transfer to places where productivity might be still greater. Business coöperation is wonderfully complex, but it has no integral consciousness; and the negotiations and bargains necessary to a concerted migration would be far too elaborate to be

conceivable. But occasional attempts in this direction show that the idea is present in the minds of enterprising manufacturers. . . .

"For reasons similar to these Mill placed the establishment of new colonies within the province of government. If it comes to be accepted that there is a case in theoretical economics for manufacturing centers of definite type and size, clearly the argument for the entry of the State as organizer of new towns would be strong. Nor would the argument, or the intervention, stop at the initiation of fresh settlements. Ultimately, it would seem certain, the whole scheme of urban distribution would have to be made the subject of a unitary social design. . . .

"Vast numbers of new houses have to be placed somewhere. Thousands of factories and workshops have to be built to meet the new conditions of industry. Where are all these to go? The State finds itself forced to answer this question, since its influence, by the accident of events, is decisive. It is vital that sound principles should be agreed upon before such enormous quantities of energy and material flow irrevocably into the wrong channels."

Housing in Canada

Mr. Thomas Adams, Town Planning Advisor to the Commission of Conservation, Canada, writing in the *American City* of the Canadian Government's proposal to lend $25,000,000 at 5 per cent, for housing, points out that "One of the big difficulties which will confront the municipalities is the problem of securing suitable land at a price sufficiently low to permit of economic development." He also states that there are only four conditions attached to the Government's scheme:

1. Each province must prepare a general housing scheme, setting out the standards and conditions to be complied with in local housing schemes and submitting the whole to the Federal Government. When approved by the latter, the jurisdiction of local schemes rests with the provincial authorities.

2. The maximum amount to be loaned per dwelling must not exceed, for different sizes and types of dwellings, inclusive of land, etc., the respective sums of $3,000, $3,500, and $4,500.

3. Loans may be granted for building houses and purchasing land only to provincial governments, municipalities, housing societies with limited dividends, and owners of lots for the purpose of erecting houses for their own occupancy.

4. Loans shall be made payable over a period of twenty or, in special cases, thirty years.

In general, the theory is that municipalities must assume responsibility for housing improvement, the Government to act as advisor and to advance money. This plan will undoubtedly work for a temporary improvement, but the results obtained by similar methods in other countries hold out no hope of a permanent amelioration. It seems strange that it is still considered that Government money at a low rate of interest can change a condition due to causes which have nothing to do with rates of interest.

H. Barnes, M. P., R. I. B. A., writing in explanation of the English Government's Housing Bill, in the *Architects' Journal*, says: "We are promised a new Land Acquisition Act, but it is said to be delayed by dissensions, and, consequently, in that illogical fashion we so dearly love, legislation, the fundamental consideration of which is the acquisition of land, is proceeding without it."—B.

Some Details of the English Government's Plan

It is announced by the Local Government Board that the Government Housing Scheme will be administered by a Chief Commissioner with eight District Commissioners. A Manual is shortly to be issued, pointing out how Local Authorities may proceed to inaugurate a housing development. A proportion of the cost is borne by the Government and a proportion by the Local Authority, the Government's share being such as not to make the Local Authority's share exceed a sum equivalent to that obtained by levying a tax rate of a penny in the pound. The Government's contribution is in the nature of a subsidy, since it is now commonly recognized that good houses at low rental can no longer be built at a profit, if the rentals are brought within the means of workmen.

Under the terms of the bill every Local Authority is required to submit its scheme within three months of the passing of the act. If it fails to do so, or if the scheme submitted is considered inadequate or otherwise not suitable, the Government is empowered to proceed for that locality on its own initiative, and to levy the cost on the community. It is very evident that any satisfactory result will depend utterly upon coöperation between the Local Authorities and the Government.

Comment is freely expressed in England as to the inadequacy of the bill, and special criticism is directed at the absence of suitable provisions for community planning. The bill is said to deal with "house-building and nothing more."

It is reported that practically all the essential house-fittings are being standardized, including doors, windows, hardware, and general fittings; also that, where practicable, existing munitions works will be used in their production in order to provide as much employment for munition workers as possible. It is also proposed to erect a model village in London for the guidance of Local Authorities. The houses will be erected from the premium plans in the R. I. B. A. Housing Competition, already reported in these pages.

The English House vs. The American

In studying the "Cottage Designs Awarded Premiums in the Competitions Conducted by the Royal Institute of British Architects with the Concurrence of the Local Government Board," I am led to wonder what would happen if a group of our recently built houses were taken from one of our war-housing projects and set down in England without any changes. Would the houses rent, assuming that the rents charged would be such that others than the upper middle classes could afford to pay the price, and that schools and a reasonable number of communal features had been added? Would the British workman take kindly to the plans of the houses?

This interesting question arose in my mind as I studied

the plans presented in these groups of premiated designs, for, from our experience, we know full well that plans such as are here illustrated would not "go" in the United States, largely because of the location of the bath, water-closet, and scullery.

From the standpoint of function there is really no material difference between the British and the American home of this class (five and six rooms). The difference really resides in the *ideas* which are associated with function in the two cases. The water-closet in one case, for example, is near the rear entrance, with the bath on the second floor; in another, the bath and water-closet are both on the first floor, accessible through the scullery. In some of the plans, the bath is in the scullery; and sometimes a part of the bath is under the drain-board of the scullery sink. Evidently the bath is still a migratory element, notwithstanding its being called a "fixed bath" in the programme. And one finds no closets on the second floor. I acknowledge that I am involved in details (like a client); but details are important in houses, particularly where the design is to be used as a standard.

Viewing many of the details of plan arrangement as I do, I am led to the question: Has the British architect considered at all seriously the functional merits of what may be said to be a typical American house-plan of this type and class? Has he, for example, given as thoughtful a study to this phase of the housing problem as expressed in America as we in America have given to the contribution made by the British architect to the general subject of community planning—the arrangement of streets and the grouping of houses? I wonder! For I feel that, notwithstanding the difference in manners and customs, we have in our house-plans something of value which may be made use of in Great Britain.

So much for the things with which I find fault. It gives one satisfaction to observe a marked tendency to break away from the rather petty quality which characterized this effort a few years ago—there is no architectural junk in the designs given the higher ratings. In this respect these designs are an expression of progress—they represent a mean toward which we should strive, for in the past it has seemed impossible for us to approach this field which lies between the monotonous row-type house and the complex individual dwelling, the object in the design of which has seemed to be to make each new house erected quite unlike its neighbor.

It is interesting to note that the competition called for five- and six-room houses only. Does this really mean that the five-room house has come to represent a minimum standard with respect to accommodations? Let us hope so. And of even greater interest is that sentence in the programme which reads "The plans may be prepared without regard to any existing by-laws or local act provisions, the object being to show the best types possible if existing restrictions are removed." Evidently there are antiquated by-laws in England also.

But all this relates to detail still. Shall they be built?—that's the truly vital matter—or will England, with that programme of action so finely conceived, slump back into the old pre-war technique (which was a generation ahead of us with respect to action) of merely dealing with sections of this problem? Better housing may come through direct action having this acknowledged end in view—and then again it may not. It may be that bad housing—a sordid rotten environment—may be the cause of action of quite a different nature. It may be that the direct approach to the housing problem is by the way of a new industrial system—who knows? FREDERICK L. ACKERMAN.

The Home-Building Law of North Dakota

February 21, 1919, a law was put into effect in North Dakota, establishing the Home Building Association. The purpose of the Act is to supply homes for its citizens through the agency of a profit-making state-owned business. The conception is simple. A citizen deposits 20 per cent of the value of the home, whereupon the state proceeds to purchase or build "such home," paying 80 per cent of the bill.

The state has evidently some misgivings upon the subject of an 80 per cent first mortgage, and it therefore arranges that while it will take all the profits, the losses will be handed back to the citizens. The fundamental error lies in the assumption that the state is a profit-making organization and, in the endeavor to support and bolster up this entirely false viewpoint, many strange expedients have been adopted. The Home Building Association is controlled by the Industrial Commission, a body of three, consisting of the Governor, the Attorney General, and the Commissioner of Agriculture and Labor, who are vested in the power "to fix the buying price of things bought and the selling price of things sold."

It is plain that the author of this provision has so little faith in its efficacy that there is written into the body of the law a further and most elaborate attempt to guarantee the state against loss. It is as follows: While "any person" may open a home-buying account with the Government, no application for state aid will be considered made by a member of a Home Buyers' League, an underlying corporation, as it were, consisting of ten or more depositors. Election to one of these Neighborhood Leagues depends on the written unanimous consent of its members. Any member, acting as an individual, initiates and completes his business with the state in the manner already described, and, in the event of loss to the state, each member of the League is jointly and severally liable to the extent of 15 per cent of the price to which his home was sold to him. The guarantee can be of value only after a sufficiently large equity has been established in homes belonging to other League members, and before that happens the state will have nothing to protect its interest but its supposed power to fix the buying and selling price. Here surely is an infant industry in need of tender care. The guarantors are invited to organize, knowing that they may be called upon to meet losses in

transactions over which they have no control and of which they may have had no knowledge. It is hardly possible that success can attend such an arrangement.

There are other defects in the bill of a less grave nature, as instanced in the clause providing for the standardization of "houses, barns, and other buildings." It is curious how the fetish of standardization appeals to the uninformed. It gives an impression of safety and therefore appeals to the conservative instinct. It is felt that once structural perfection is attained, there will be comparatively clear sailing. It is a simple faith, but it will not move mountains when those mountains are such things as excessive land costs and overcrowding of dwelling areas.

Mingled with much that is bad there is also some good. The state is given the power to buy or commandeer land for building purposes, frankly recognizing thereby the obvious fact that unless a community retains effective control over its own territory, its growth cannot be otherwise than dwarfed and disturbed. Land wealth may be conserved to the community in several ways and the method preferred by the South Dakota law may not be the best one, but once the principle is recognized, its details may be modified by the necessities of special environment.

When the law is rewritten, as rewritten it must be if it is to function, it is to be hoped that the cost and use of the land may be treated as questions of major importance and the principle be clearly established that the state should not attempt to realize a profit in the enterprise of supplying homes for its citizens.

JOHN IRWIN BRIGHT.

Correspondence

Miss King's Articles on Spanish Architecture

TO THE EDITOR OF THE JOURNAL:

You do not, so far as I know, invite remarks from readers on the contents of this valued publication. Perhaps it is venturesome for a "lay" reader, so to speak, even to offer anything in the shape of a tribute; but my appreciation of certain things you have given us is so lively that it will not be denied. It insists on being deposited at the feet of that artist in words who gives us now and then a glimpse of "Early Spanish Architecture."

It is so unusual to find a writer who knows how to make pictures with words—I do not mean how to call up mental pictures by words, I mean how to literally create pictures with words on the printed page. This is a great art. Most writers have it not, or do not realize its possibilities, or perhaps its existence. Not so with this uncommon contributor. She adds to her pictorial gift a remarkable knowledge of her subject, clearly the result of very devoted research. But that feature of her writing, quite marvelous to the superficial lay reader, is not what compels this special "doffing of the hat."

Looking on a page of it is like looking on a charming piece of mosaic, bits of choice colors fitted together cleverly, some of them brought from afar and lending a certain Old-World and other-day distinction to the product. Or it might suggest a grouping of flowers, subtly chosen and delicately assembled with an exquisite sense of color-combination and balance. Also the harmonic quality of the composition is not slighted, as one may realize best in reading it aloud.

Naturally, the poetic feeling that goes with these other gifts of the muses is not wanting. You must go far to find a more felicitous ending for a delightful chapter than the closing paragraph of Miss King's article in your March Journal.

For a reader who is acutely susceptible to the handling of words, the discovery of so individual a writer with this peculiar skill has been "a find." Whether her artistry of language is instinctive or sought for, it does not betray itself—nor does that matter. Such a great gift it is, and so much to be desired! When you add to it what seems to me a wealth of knowledge in that fascinating branch of your chosen art, you have a contributor on whom you should indeed be congratulated. And the beautiful photographs which illustrate her text are its worthy complement.

—A. L. M. K.

News Notes

"Architecture and Government"

Mr. Harry Barnes, a Fellow of the R. I. B. A., and a Member of Parliament, writes in the *Architects' Journal* (London) of architecture and government as he sits "by a window of the Library in the House of Commons." Neither bemoaning the past nor bewailing the present, he looks forward and asks:

"Are there resources as unlimited and as accessible as those that built pyramid and pylon, castle and church? Some service alike to God and man that shall blend the spirit that reared the altar with the spirit that for the fortunate few surrounded life with grace and beauty? If there is, there is the spirit of a great architecture that shall not less worthily burden the earth than any monuments the past has piled. I believe that in the widening conception of human relationship, the possibilities of human coöperation, the resources of a common life, there lies a dynamic power that shall move us to greater architecture than the past has ever known.

"I have a vision of a state in which private life shall grow more simple and public life more splendid, where the

range of architecture shall not be determined by the depth of private purses but by the infinite variety and diversity of public needs.

"In that state architecture will be both simple and splendid, simple as it provides in the village for the homely needs and activity of the smallest groups; splendid where in great centers of population the complex activities of mankind find the freest scope.

"Is it too much to hope that some day we may have a great architecture of happiness?"

War Memorials

The Soldiers and Sailors Memorial Committee of St. Joseph, Mo., reporting upon the question of a memorial undertaking for their city, offers its opinion that a cenotaph or monument was too narrow a conception of the project, and sums up its conclusions as follows:

"A number of suggestions for commemorative projects, mostly utilitarian, in one or two instances, indeed, commercial in character, have been offered by the public; but this Committee has felt that the many and deep sentiments involved could only be happily met by carrying out, in addition to providing a memorial in its pure and limited sense, some great commemorative work, itself suffused with the same spirit that characterized our purpose in the war. If that was 'to make the world a better place to live in,' this should be to make St. Joseph a better place to live in, a place better, not alone in the direct material sense, but better in that a new environment, if thus provided, would contribute sensibly to a higher and broader type of community life."

What Makes Men Work Best?

In a recent number of *L'Illustration*, M. Henri Bordeaux recounts some fragments of a conversation that took place at a luncheon given by M. Gabriel Hanotaux in honor of Theodore Roosevelt when he was passing through France on his way to attend the marriage of his son at Madrid in 1914. The conversation to which he refers turned, at one moment, on the subject of the most powerful motives that actuate men.

"Love of life," said one.

"Ah, yes," said Roosevelt, "but also glory, interest, and duty. The important thing is to keep a true perspective of human affairs and not give first place to that which should be second, and vice versa. Of first importance, I place the family."

M. Hanotaux here remarked that, for many men, one of the principal forces of action is the desire, almost instinctive, for work well done; of "fine work," as the popular expression goes. "This desire," said he, "is often stronger than the love of glory. One does not think of glory, but of doing well that which one has to do. When I was Minister, no other thought supported me so much."

"My experience is the same," observed General Mangin. "During my colonial expeditions I never thought of spurs to be won, but of doing my work in the best way possible."

"That," said M. Boutroux, "is called conscience—at least, professional conscience."

A New Association for Architectural Practice

The following announcement has been made:

The growth in importance and complexity of modern building problems has suggested the advantage of a new type of professional architectural service. For the efficient solution of important problems it would seem highly desirable to secure the coöperation of a group of architects of varying qualifications and experiences rather than to depend on the necessarily limited knowledge of an individual.

With this idea in mind, a number of professional men of wide experience have agreed to combine their efforts in the practice of architecture, each contributing of his special knowledge in the design and supervision of such work as in its nature would justify the group effort. They are convinced that this can be done and yet preserve for the client the personal interest and guidance of the one member of the group specially entrusted with the direction of the work. In the same way, the proposed plan will in no way ignore the fact that in certain cases, for instance in residential work, it will still be desirable and advantageous to the client to have his work conducted along the old lines of individual service.

The professional men who are thus offering their combined skill and experience are these: Robert D. Kohn, F.A.I.A.; Charles Butler, F.A.I.A.; and Frank H. Holden, Architect.

Whenever it will be to the advantage of the desired result, the individual members of the group will be aided by and in turn will coöperate with: Eugene W. Stern, Member American Society of Civil Engineers; Frank E. Vitolo, Architect; and Clarence S. Stein, Architect.

Obituary

J. Cleveland Cady

Elected to the Institute in 1864; to Fellowship in 1865
Died at New York City, April 17, 1919

Dr. Cady (he received the honorary degree of LL.D. from Trinity College in 1906) was born at Providence, Rhode Island, and was graduated from Trinity College in the class of 1860. He had practised architecture in New York City since 1870, his associate being William S. Gregory.

He was the designer of many notable buildings: the Metropolitan Opera House, the American Museum of Natural History, the Presbyterian Hospital, the Skin and Cancer Hospital, Bellevue Medical School, and the Hudson Street Hospital. For Yale University he designed fifteen buildings, including a number of dormitories, as well as Dwight Hall and the Chittenden Library. He had also executed work at Williams, Wesleyan, and Trinity; to the Library of the latter college he presented his architectural library.

Dr. Cady was a devoted Presbyterian, and he had held the position of Superintendent of the Sunday-school of the Church of the Covenant in New York City for fifty-three years. He was a Governor of the Presbyterian Hospital, a Trustee of Berea College, Vice-President of the New York City Mission, and President of the National Federation of Churches.

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE, CONTRACTS & SPECIFICATIONS, FIRE-PREVENTION, MATERIALS & METHODS, STRUCTURAL SERVICE

The Lighting of Buildings*

Foreword

This is not a "how to" article. It is intended to point out hereafter what considerations the arrangements for lighting a building, both by natural and artificial light, entail, and their bearing on the general problem of making buildings useful, pleasant places in which to live or work, and economical in operation.

The equipment of a modern building, adapted for the intensive indoor life of these times, is so complicated that its design presents what is frequently a difficult engineering problem, involving so many functions that a number of highly technical professions and trades have grown up around them. Indeed, many of these branches of construction have become so important that on them largely depends the successful and economical operation of well-nigh every building.

Building Comfort

Life in such buildings hinges about their mechanical and electrical equipment, without which they would be quite impossible. Thus, in large, densely populated structures, the traffic problem becomes a subject for calculation quite as much as planning. Elevator equipments can no longer be proportioned by purely empirical rules. They should be designed directly in relation to the number of people that must be handled in a given time. Otherwise an insufficient or unnecessarily expensive installation may result. An insufficient elevator equipment throttles the traffic and reduces the usefulness of the building.

In large buildings, the design of the heating and sanitary equipment become problems of such magnitude that errors may be very costly. A very slight lowering in efficiency may involve considerable annual operating costs.

But none of these equipments involve the personal comfort of the building occupants quite so directly as illumination. We may growl a bit if delayed in getting to our offices or work, and wear coats if chilly, but these things are of passing moment when not totally impossible. On the other hand, if we cannot see to work, if our offices are dark or badly lighted, the effects are much more marked because continuous, and our efficiency, often unconsciously, is markedly impaired.

We cannot leave this question of lowered efficiency due to poor lighting without drawing attention to the reports of several conclusive tests (W. A. Durgin, "Productive Intensities," Trans. I.E.S., Vol. XIII, No. 8), showing that in industrial plants increases in production as high as 50 per cent resulted from substituting well-designed lighting equipments for existing equipments of poor design. Further tests of the efficiency of the eye used in such ways as would be entailed in general office work (Ferree and Rand, "Tests on the Efficiency of the Eye," Trans. I.E.S., Vol. VIII, p. 40; Vol. X, p. 407), have shown very marked differences in seemingly insignificant variations in the character of the illumination—variations that are no greater than may be found every day between one modern building and another—yet such differences in eye efficiency produce a marked and measurable falling off in the amount of work accomplished in a given time. It has also been shown that such lowering in efficiency, if maintained over long periods, results in a permanent reduction of the whole human organism's ability to respond to the will. It would be well for those whose interest is sufficiently alive to read in this connection a little pamphlet published by the Illuminating Engineering Society called "Light—Its Use and Misuse."

The Illuminating Engineer

Due to the comparatively recent development of high-efficiency lamps, both gas and electric, the latest addition to the array of talent involved in the successful design of a modern building is the illuminating engineer. The illuminating engineer is young and, filled with the enthusiasm of youth, he has sought to "put over" his ideas without much consideration of the architect's bigger problem, which is indeed, a complex manifold.

The illuminating engineer has had little patience with the architects' and the lighting fixture makers' adherence to standards and devices based upon conceptions tracing back to the "dark" ages. He knows and can prove that his fundamental principles are correct, but has lacked the ability to state his case clearly and convincingly. He has rarely been able to show the architect that his results are esthetically possible. Steeped in a new application of science, he has failed to see that his true aim is not to force the use of devices conceived in the laboratory, but to put into practice the principles of good lighting, whether these principles be applied to the design of a purely utilitarian device or a most decorative chandelier. As we shall see

*This article is the first draft of a lecture prepared by the "Committee on Lectures to Architectural Students" of the Illuminating Engineering Society, 29 West 39th Street, New York City. When completed it can be obtained from the Society, together with lantern slides for delivery in any school of architecture. The Illuminating Engineering Society has also prepared lectures on the "Lighting of Work Shops," "The Lighting of Offices," "The Lighting of Residences," etc., any or all of which can be obtained for the same purpose. The object of the Society in preparing these lectures is to educate the public in the proper use of light. The various codes of lighting mentioned in the article are published by the Society and may be obtained at a nominal charge.

later, these principles are quite simple and, with a little common sense and good taste, can be applied to any interior however elementary or rich in treatment.

The one thing that the illuminating engineer is justified in *demanding* of the architect and the fixture manufacturer is that both shall realize that modern illuminants, if not properly used, possess immense power to do bodily harm through eye-strain, and that lighting devices, whether simple or decorative, must be designed with this in mind. It is not possible to use the modern incandescent lamp safely without ample eye-protection.

The architect and fixture-maker cannot logically claim that the modern illuminant, which has come to stay, cannot be incorporated in their designs without destroying their value. It is their problem to conceive adaptable designs, as it was the problem of their artistic forefathers to produce designs built about the candle and kerosene flame. The difficulties involved should only make the problem the more interesting.

The great masters of art frequently, if not always, have been scientific students of their media. Some of them have shone as scientists. Indeed, the scientific method had its roots in the attitude of mind that also brought forth the arts of Hellene. To achieve perfection, the artist must thoroughly understand the character and structure of his vehicle of expression. But art, like science, fails in its appeal unless it is practical. Pure science, like pure art that does not lend itself to everyday use, and that does not add something to the ease and comfort of living, never achieves its final purpose.

We are accustomed to saying "This is a practical age." But is it relatively more practical than any other age? Was not Rheims Cathedral, looked at from the viewpoint of its time, as eminently practical a structure as a modern reinforced concrete factory building? Perhaps more so—because the modern architect has quite generally failed to base his practice on living, practical things.

The difficulty is that modern graphic art has become a sort of Taotism—a cult trained to look backward to ancestral conditions and not forward to the ultimate culmination of modern life.

This is, at least, the viewpoint of the illuminating engineer who finds himself in sympathy with the architect's problem. His ambition is to aid in the beautifying of buildings through application of the practical possibilities of modern lighting.

Seeing

Since most arguments begin because of the lack of a common definition, we shall start by determining what we mean by seeing. When we see anything, we are conscious of a pattern of visual sensations. Since the only two visual sensations are those of brightness and color, we shall say that what we see is a pattern of colors varying in brightness. And to clear up any misunderstanding, let us say that black, white, and all intermediate tones of gray are colors. In this sense the blackness of a totally dark room is a color of zero brightness, for at times it certainly is a very vivid sensation.

A blind man has no visual sensation whatever—not even blackness.

Color Sensations

These sensations are aroused by certain physiological processes stimulated in the constituents of the eye retina when light falls upon it. These processes have been divided into that arousing the sensation of brightness and three color sensations corresponding in their purity to the sensations aroused by three definite hues of red, green, and blue. All visual sensations of color appear to result from the varying degree to which these three processes are stimulated. The red and green processes stimulated alone and to equal degree produce the sensation of yellow. "Yellow" light stimulates both these processes. The three processes acting together produce the sensation of white. All colors tend to go white with increasing brightness. The various forms of color blindness result from a failure of one or more of these processes to function.

The Eye Function

The retina is protected and the amount of light admitted to the eye controlled by muscular action on the iris, causing it to increase its aperture with decreasing light and decrease its aperture with increasing light. This control is stimulated by the intensity to which the retina is lighted. If one part of the retina is brightly lighted and another part dark, both parts seek to control the iris in opposite ways, giving rise to one form of eye-strain. To prevent such strain, the contrast between the brightness of different parts of the field of vision must be kept within proper limits.

If the retina is constantly lighted to a fixed intensity, the iris muscles become tense and another form of strain results. To avoid this, the field of vision must vary in brightness from time to time so as to keep the iris muscles active.

The iris processes above mentioned are aroused by radiant energy in the visible range (generally called "light") falling upon it through the iris aperture. The light received from various parts of the field of vision is focussed on the retina by the lens so as to produce on the retina a pattern in intensity and color corresponding to the amount and color of the light radiated or reflected from the various parts of the object seen.

Light the Primary Medium

The first object of this explanation is to bring out the fact that the primary medium in which the architect works is light. He produces patterns in brightness and color by means of light reflected from his construction and their decorations. These patterns, translated into visual sensations, are what we see. It follows, then, that unless the object receives just the right character distribution and color of light, it cannot produce the right pattern, and the message it conveys is more or less distorted. There is no such thing as beauty in an unheard symphony or in an unseen painting.

A design in perspective and color may indicate just the idea the architect has in mind. But when it is built and lighted by the means at hand, will it look the same? Will the delicate tints maintain their hue? Or will they lose their character with a change in the color of the light? There is little blue in the light emitted by the highest efficiency modern illuminant.

It is easy to draw a mold of graceful contour, but when it is in place will the pattern of high lights and shades produce the same visual impression? Then, we do not see its contour. And if it be drawn in relief with shadows à la McGoodwin, will the same shadows be produced when it receives light only from a window or a low-hanging chandelier? Can this chandelier, pretty in itself, light the room so that it will look as the architect conceived it in his mind's eye?

Thus does light and illumination control the final result. And, lest it be thought we are drawing distinctions rather finely, let us remember that it is just such refinements that cause us to admire so greatly the works of the masters. Yet we copy their cathedrals, sublime in their dim distances and deep shadows, and fill them with glaring brightness.

The second object of our description of the function of the eye is to show that the solution of the general problem of illumination depends upon knowing what we see, how we see, and why we see. The answers to the "what," "how," "why" must be given in terms of psychology, physiology, and physics respectively. The subjects are of relative importance in establishing the principles of good lighting almost in the order given. Any proper method of lighting, artistic or utilitarian, must fill the conditions so set.

The Psychology of Lighting

Outside of the physical structure of the brain there is probably no other organ, except the eye, so capable of wide adjustments through the influence of use, environment, and training. In a comparatively short time the eye can be trained to be exceedingly sensitive to brightness or color differences. Development of one sense usually decreases the sensitiveness of the others. Sometimes this super-sensitiveness is the result, not of training, but of environment. Habits of seeing are thus quickly developed. A man accustomed to living immersed in one kind of lighting feels decidedly uncomfortable in another, even if, physiologically, the change is a wise one.

Prejudice

Factory hands and clerical forces accustomed to working with individual localized lighting almost invariably object if the lighting be changed to general illumination of relatively high intensity, which change, experience and test have shown, decidedly increases eye-comfort as well as production. (See "Code of Factory Lighting" published by the Illuminating Engineering Society. This Code has been incorporated in the factory laws of many states.) The phenomenon is purely psychological and is so important that at least one firm of engineers makes it a practice to lecture to the hands or clerks on the subject of lighting and demonstrate the advantages of the proposed change.

A case comes to mind of relighting the rooms occupied by the clerical forces of a large insurance company. The localized lights were removed and generalized lighting installed. Violent objections at once resulted. Tests were then made in the clerks' presence. Their interest was aroused and several changes made, the last change being to reinstall the objectionable generalized system without the clerks' knowledge. All hands at once agreed that the improvement was marked. From that time no further difficulties were encountered, and, so far as is known, the occupants are not aware that the illumination in use is identical with the system which projected the trouble.

Numerous similar cases might be cited. One, for instance, of two officers in a bank, both occupying similar desks, in similar locations, similarly lighted. Both objected to the lighting for diametrically opposite reasons.

One office manager declares that his clerks complain of the lighting and want another system installed, while in another similar office the clerks object to the lighting wanted in the first case and want the lighting to which objection is raised by the other office. Tests show that both systems are practically equivalent as to eye-comfort and efficiency.

A commonly satisfactory method is to install the proper lighting equipment in one smaller office, where the conditions may be controlled without objection, and leave the system to create its own demand, which, experience shows, is almost certain to arise. Of course, this method is only practical where existing equipment is to be modified.

The Effect of Eye-Strain

Another matter that should be touched upon here is the very important one of bodily comfort. The optic nerve centers are very closely associated in the brain with those of the stomach. Trouble in one region almost invariably engenders trouble in the other. Cases are on record where stomach disorders have been brought on by continued eye-strain, and nothing so quickly upsets the whole organism. This has become so common a matter that doctors frequently diagnose the cause of stomach trouble as due to defective lighting. Children are particularly sensitive in this way, so that the natural and artificial lighting of schools and other places where children congregate should receive particular attention. (See "Code of School Lighting" published by the Illuminating Engineering Society.)

Light thus has a very peculiar psychological effect, particularly as to color and distribution. Color in light may be used to arouse emotional moods quite as readily as music. All modern stage-lighting is founded on this fact. Attempts have even been made to combine color in light with music so as to sharpen the emotion. Such attempts, while founded on a correct principle, have failed because color has generally been treated as an additional voice in the orchestra. (See "Mobile Color and Stage Lighting" by Bassett Jones, *Electrical World*, Vol. 66, No. 5, July 31, 1915.) Witness as an example of the effect of color and quality in light the appeal made by the sort of lighting done in certain restaurants. Some are cool and quieting, others are exciting, and still others almost sensual. A gathering of otherwise normal people can be profoundly stirred by a properly executed series of changes in the color of the lighting.

So, in the lighting of offices and other work-places, the result may be either restful or restless, depending entirely on how it is accomplished—and this entirely apart from any question of eye-comfort.

The Normal and the Abnormal

The quality and color of well-distributed daylight is normal. Any departure from this standard is abnormal—

usually depressing if toward blue and stimulating if toward red. Remember that the light from the best modern incandescent illuminants is quite red compared to daylight, and this effect is sharpened by any red or buff component in the wall and ceiling treatment.

All such results as we have been discussing are, of course, modified by the intensity and distribution of the light and by the environment. A well-shaded, almost red, kerosene flame in an otherwise dimly lighted library may produce a sense of extreme comfort.

The subject is entirely too complicated to more than mention here, but at the same time it is one of the most important and the least understood in the whole art of illumination.

The problem of introducing new ideas in lighting, however correct they are known to be, is not easy. The difficulties are not amenable to calculation but must be overcome by educational methods. Habits must be corrected and new ones developed. Thus the first, and generally the most difficult, problems that face the illuminating engineer are psychological. He has to teach people to see correctly.

The Physiology of Lighting

Above, while discussing the function of the eye, we mentioned the one fundamental phenomenon that lies at the basis of all good lighting—*brightness* contrast. Dr. H. E. Ives has said ("The Measurement of Brightness and Its Significance," Trans. I.E.S., Vol. IX, No. 3) that *the art of good lighting is the art of the proper distribution of brightness*. This statement should be the slogan of every illuminating engineer and of all others who do lighting. It means that if the distribution of brightness over the pattern on the retina does not disturb its normal functioning, then, so far as the eye is concerned, the object seen is properly lighted. If eye-strain is the result of the brightness distribution, then no matter how beautiful the object may be, we tire of looking at it, and in so far its beauty is destroyed.

Brightness Contrasts

An illustration of what is meant by brightness contrast is that of a lighted candle in a dark room. The contrast of the bright candle flame against the black background is so great that the eye cannot protect itself and is blinded, resulting in serious eye-strain if too long maintained. On the other hand, the most powerful bare incandescent lamp in a white room is not immediately annoying, although eye-strain may eventually result from the excessive quantity of light received on the retina.

These are the extremes. The safe contrast is contained within a comparatively narrow range. Probably it should not exceed 100 to 1 if the eye efficiency is to be maintained at a reasonable level. (See Ferree and Rand, "Tests on the Efficiency of the Eye.")

A more practical illustration is that of a room finished in dark wood and lighted by wall-brackets and a chandelier, both bearing imitation candles capped by round-bulb frosted lamps. The contrast in this room was about 1,000 to 1 and was very trying. Since the eye was blinded, the design could not be seen, and so the architect had defeated his own purpose. The windows did not improve matters because, with a bright sky visible, the contrast was still high—over 1,500 to 1, or fifteen times the safe limit.

A practical solution of the artificial lighting of this room would be to substitute softly toned plaster for several of the wood panels and mount in the bottom of these panels the same wall-brackets now used. Substitute standard clear lamps for the frosted lamps and mount in front of the lamps a batik shade with translucent colored ornament, if desired. Let the back of the shades be white so that they will reflect light to the plaster panel, which will diffuse it into the room. The brightness contrast, while high, would then be bearable. The chandelier would be unnecessary save as an ornament, and why not let it be frankly an ornament and not a lighting fixture?

In one of the most beautiful interiors in America, the artificial lighting, which, due to insufficient daylighting, is used at all times, is accomplished by very fine examples of the metal workers' art, studded with bare frosted lamps. The lamps, seen against the generally dark-toned ceiling and walls, so blind the eye of the beholder that the fixture bodies themselves become mere dark masses and the very fine ceiling above can hardly be discerned, much less can its detail or color be appreciated. It may be added as a fact, that the number and size of lamps on these fixtures were selected, not with any relation to the illumination, but solely because that number of bulbs of a certain diameter looked best on the drawing. That, when bought, the bulbs necessarily contained 40-watt filaments was never considered as material, although 5-watt lamps in that number would have generated enough light. Actually, the 5-watt lamps, being practically as bright as the 40-watt lamps, would not have reduced the brightness contrast, but the employees would not have been drowned in light. The result is, of course, that no more than about one-third of the lamps are ever lighted.

Endless similar cases can be cited *ad libitum*. In fact, it is rare to find an architectural interior where seemingly any attention has been given to the all-important question of brightness contrast, either in arrangements for daylighting or artificial lighting. Both cases are equally important, and particularly so to the architect, because, when excessive brightness contrast exists, the design cannot be seen.

An interesting deduction from the principle of brightness contrast is that dark-finished rooms must be dimly lighted while light-finished rooms may be brightly lighted. It follows that dark finishes should not be used in rooms where much light is required. An additional argument in favor of this rule, that will probably more directly appeal to the architect, is that the deeper color tones used in a dark-finished room will not stand even a moderately intense light. If intensely lighted they fade out and lose their richness. Light on any color is equivalent to mixing gray with the pigment.

Sky Brightness

The sky-dome, which is the source of daylight, at high noon has a luminosity that, when seen through a window from a fairly light-toned interior, will produce brightness contrasts exceeding 1,000 to 1, and more if the interior be dark in tone. Furthermore, the window is rarely out of

the field of vision and generally throws its light horizontally into the room, so that none of the protecting features of the eye, which is arranged for maximum brightness overhead, can function properly. (See Luckiesh, "A Study of Natural and Artificial Light Distribution in Interiors," Trans. I.E.S., Vol. VII, No. 7, p. 388.) We are, however, in the habit of working under these conditions and do not realize our loss in efficiency until such conditions are corrected—as, for instance, in a studio with an overhead north skylight properly shaded, or in a room with windows arranged to transfer the light to the ceiling. The effect of the unscreened window is obvious if we try to discern the features of a man sitting with his back to it.

Daylight in the Room

As a general thing, the daylighting of a room is at such a high level that the excessive amount of light causes the iris aperture to become very small. The surfaces or window areas are large, and if a wide sky-zone is visible from the window, the incoming light from the sky is well diffused. Such conditions cannot be easily achieved by artificial light. The areas emitting the light are small and generally at high intensity. The total amount of light is quite small, so that the effect of light quantity is to leave the iris open. Under such conditions, the retina becomes much more subject to the effect of sudden excess of light. That is to say, the iris being open, should an excessively bright object come within the field of vision, the iris has not time to close before some eye-strain has been produced. The eye-strain produced in this way by excessive light quantity is quite different from the eye-strain produced by excessive brightness contrast against which the eye has little or no protection.

It thus comes about that the level of intensities required in artificial lighting must be considerably lower than those generally met with in daylighting. The contrast between the conditions of natural and artificial lighting are most evident at the time we change over from one to the other during continuous work. The result of this change is as continuous as the work done under it, and almost always results in a marked falling off in efficiency.

It is claimed, however, that if the amount of daylight is reduced to the amount satisfactory in artificial lighting, and the brightness contrasts reduced by proper window shading, the efficiency of the eye is increased. (See Woodruff, "Medical Ethnology," Chapters XIV and XV.) Recent experiments in scientific window shading seem to substantiate this claim. Woodruff states that we are better off with less daylight.

It is probable that a high level of eye efficiency can be reached both by systems of natural and artificial lighting which generally throw most of the light to the ceiling. The light is then reflected from the ceiling and diffused downward, thus bringing the brightest surface overhead. If, in addition, the color of the light is in both cases approximately the same, and if there is a slight direct component added to produce normal shadows, then, with advantage, in both cases, the amount of light may be the same. If, then, the ceiling be white, the least possible amount of light will be lost by absorption, and if, in addition, the walls be treated in some quiet cool tone, the result will nearly approach natural conditions.

The Physics of Lighting

It is hardly necessary in these days of universal knowledge to explain that light, before it reaches the retina, is radiant energy—precisely the same as the radiant heat felt from an open fire and a steam radiator; the same as the radiant energy used in radio communication and in X-rays. The only difference between any of these forms is one of wave-length.

Light Rays

The energy radiated from an incandescent lamp is mostly radiant heat, known as the *infra-red rays*. A very little of the energy radiated lies in the wave-lengths that have the power of exciting the retina and so give rise to visual sensations known as the *visible rays*. Still less lies in the range whose wave-length is too short to be luminous and are known as *ultra-violet rays*. The wave-lengths arousing visual sensations lie between those arousing the sensation of red, the longest, to those arousing the sensation of violet, the shortest. This range is known as the *spectrum*. Equal amounts of radiant energy in the different visible wave-lengths do not arouse the same degree of brightness sensation. The maximum brightness sensation will be aroused by this energy in the yellow-green part of the spectrum, and here it is several hundred times as effective as it would be near the red end or the blue end.

We can therefore distinguish detail with a minimum of light if this light is yellowish green. The color sensation produced would be very similar to that aroused by the light from the Mercury Arc (Cooper-Hewitt Lamp), but any surface having a different color would appear black when illuminated by this light. This is because every pigment gets its color by reflecting or transmitting light of some particular dominant wave-length to the eye, and absorbs the remaining wave-lengths. If, therefore, we mix together a red, a yellow, and a blue pigment, the red absorbs nearly all of the blue and most of the green and yellow. The blue absorbs nearly all of the red and the remainder of the green and yellow, and the yellow absorbs the remainder of the blue and red. All the light is absorbed and none reflected, so the mixture appears black.

This process is quite the reverse to the mixture of different colored lights, for then every step is toward white light, while, with pigments, every step is toward a black pigment. The primary light hues, the mixture of which produces white, are red, green, and blue, corresponding to the three retinal color processes. Red, green, and blue are therefore the true primaries and not the so-called red, yellow, and blue pigment primaries, because it is the color of the light by which the pigments are seen that determines their apparent color. Any shifting in the color of the light causes a corresponding shifting in color and change in brightness of the pigment. Thus blues, that are prominent by daylight, become dull and purplish by ordinary artificial light. (See "Text-Book of Color," Rood, and "Color in Lighting," Luckiesh.) In this connection it is easy to realize how important is color in the lighting of picture galleries.

In order that what appears hereafter may not seem Greek to the uninitiated reader, we shall pause here to define certain terms used in illuminating engineering. It will also save long-winded explanations later.

Light Measurement

The visible portion of the energy radiated by any illuminant is rated in terms of the brightness sensation it will produce on reflection from a white matt surface having 100 per cent reflection factor. It is measured by comparing the brightness sensation so produced with the brightness sensation produced on a similar surface illuminated by a standard lamp. Devices for making this measurement are called photometers. Actually they measure brightness sensation, and are therefore psychological rather than physical instruments.

Light Units

The standard lamp used in the photometer is compared with a standard source of light known as the "candle." The intensity of brightness sensation produced by this "candle" on a surface, every part of which is at one foot distance from it, is called the "foot-candle" and the amount of visible light at this intensity received on a surface one square foot in area is called a "lumen." The product of the average foot-candles, or average intensity of illumination over a given area, times the area in square feet, is the amount of luminous flux or the number of lumens received on that surface.

The actual brightness of any luminous object, such as a lighted surface or a light-source, is measured by comparing directly the brightness sensation produced by the surface or source with that produced directly by the standard lamp. That is to say, the luminous surfaces of the two light-sources are compared without the intermediary illuminated surface used in making foot-candle measurements.

It is obvious that as the light radiates away from the source it becomes spread out over greater and greater areas in space and thus becomes lower in intensity. In other words, the candle-foot measurements will decrease with increasing distance. But, save for interference by intervening gas or suspended particles of matter, the brightness of the source remains constant at any distance. Brightness is usually rated in candles per square inch. That is, in terms of the intensity of illumination that would be produced on a surface one foot distant if the source were one square inch in area and of a brightness all over equal to the actual source.

We thus have four principal terms to remember:

1. *The Candle*—arbitrary unit light-source producing arbitrary unit brightness sensation on a surface at unit distance.
2. *The Foot-Candle*—Intensity of illumination produced at unit distance from a candle.
3. *The Lumen*—amount of visible light flux received on a surface of unit area illuminated to an intensity of one candle-foot.
4. *Candles Per Square Inch*—brightness of a source of light in terms of the intensity of illuminations produced by an equally bright source one square inch in area.

We are now, perhaps, prepared to address ourselves briefly to some of the more technical problems of illuminating engineering.

Light Computation

First, we shall outline the method of computing the amount of light necessary for the proper lighting of any interior. We shall do this because only in this way can the application of the principles of good lighting be developed, and the important factors controlling the success of the installation made evident. We shall be as brief as possible and give only an outline of the method, for it is not our purpose to write a handbook but to bring about a better understanding of the problem.

Let us assume that a certain amount of visible light has been let loose, so to speak, in a room. What happens to it? After it leaves the fixture it strikes on various surfaces where some is absorbed, or escapes, as through a window, and some is reflected. This reflected light again strikes on other surfaces and is again partly absorbed and partly reflected. These multiple partial reflections and absorptions keep up until all the light is absorbed. Due to the enormous speed at which light travels, the whole process occupies but a very short interval of time. If all the surfaces of the room reflected all the light that fell upon them, the light in the room would never decrease but would be increased continually by additional light emitted by the lamp or fixture. Therefore, in order to maintain a given quantity of light in any room, the fixtures or lamps need only emit in any given time the amount of light that in the same time will be absorbed. In other words, the number of *lumens* lost is the number that must be generated. If, then, we know how the light will be distributed in the room, or if we know the amount of light in lumens received on all surfaces due to all multiple reflections, then, multiplying these quantities by the absorption factors of the surfaces will give us the amount of light that must be generated.

But the total light received on any surface may be expressed in terms of *foot-candles* and may be measured or calculated as the case may be. So, if we multiply the average foot-candles over any surface by the area of the surface, we get the "*lumens*" received. Multiplying the lumens received by the average absorption factor of the surface gives us the lumens lost.

This may be made clearer by an example which should be followed, as from it some most important deductions will be made. Assume a room 20 x 20 feet in plan, 10 feet headroom, and containing four windows 3 x 6 feet. Assume that the desirable system of lighting will be such that the ceiling is 16 times brighter than the floor and 3 times brighter than the walls. The ceiling is finished white and shows a reflection factor of .70. That is, 70 per cent of the light received is reflected and 30 per cent absorbed. The average reflection factor of the walls is .50, of the floor .20, and of the windows .15. The desired illumination on the floor is 6 foot-candles. Then on the floor, which has an area of 400 square feet, $6 \times 400 = 2{,}400$ lumens will be received and 380 lumens reflected. The reflected lumens amount to .95 lumens per square foot, which is equivalent to a brightness of .0066 candles per square inch. The ceiling is to be 20 times as bright. Hence, the reflected lumens must be 14 per square foot. This is 70 per cent of the incident lumens. The incident lumens are therefore 20 per square foot. The lumens absorbed on the ceiling

are 2,400. Similarly, the lumens absorbed and lost by the walls and windows are approximately 3,900. The approximate total lumens lost are 8,300.

There are, let us say, four ceiling outlets, and the fixtures to be used show an over-all efficiency of 80 per cent. Therefore, the total lumens to be generated by the lamps are 10,400, or 2,600 lumens per outlet. Referring to the lamp manufacturers' handbook, we find that a 200-watt lamp will more than fill the requirements. The next smaller size will not quite do the work if allowance is made for dirt accumulations. The total power consumption runs 2 *watts per square foot of floor area.* The percentage of the total lumens generated received on the floor is called the *Utilization.* In this case, it is .247 or nearly 25 per cent.

In the case assumed, the reflection factor of the floor is low—about that of brown cork tile or darker shades in linoleum. Actually the floor will be partly covered by desks, generally lighter than the floor in color. On these desks there will be white papers. All such changes will increase the reflection factor of the floor to a point where the increased multiple reflections will materially increase the total light in the room, and hence the illumination on the desk-tops, which, by the way, are 30 inches nearer the ceiling than the floor. It will then be found that four 150-watt lamps will suffice. The *watts per square foot* are then 1.5, which is about normal for this kind of lighting.

For additional data on watts per square foot required under various conditions, see Edison Lamp Works of the General Electric Co., pp. xiv-xix, **Industrial Section.**

Lighting Fixtures

Now as to the fixtures. The type required to produce the brightness distribution established must be either *indirect* or *semi-indirect.* The first type throws all light initially to the ceiling. The second type throws most of the light initially to the ceiling and will consist of a more or less dense glass basin hung below the lamp. This basin also serves to hide the lamp from view, which is important, since the brightness of the lamp filament is enormous. In order that the fixture may reach the efficiency assumed, the glass basin must be wide open, a little flatter than a hemisphere in section, and not shaped in at the top, or its full aperture in other ways restricted. This type of fixture, rather than the indirect type, will be used, as the luminous quality of the basin improves its appearance.

If the lamp filament is a little lower than the top edge of the basin, somewhat more than 50 per cent of the light-flux generated will be received initially on the basin. The mean spherical candles or mean intensity at 1 foot distance of the light emitted by the 150-watt lamp is 163. That is, if every part of the basin is 1 foot from the filament, its inner surface will be illuminated to an intensity of 163 foot-candles, or a brightness of 1.13 candles per square inch. No surface in view should have a brightness exceeding, as a maximum, .2 candles per square inch, and preferably less if the surrounding luminous surfaces are materially less than .2 candles per square inch in brightness, so that the basin must be of such quality that the brightness of its exposed surface will not exceed this amount. That is, the luminous surface of the basin must not exceed in brightness a surface illuminated to an intensity of 28.8 foot-candles. This, it will be noted, is just about the illumination on the ceiling, and is a proper condition if it can be reached. Actually no harm will ensue if the basin is thirty times brighter than the ceiling thus introducing a brightness contrast of 1 to 30.

The intensity of the light emitted by the basin (28.8 foot-candles) is about one-sixth of the intensity of light (163 foot-candles) received on its inner surface, so that four-fifths of the incident light must be disposed of by reflection and absorption. Since the fixture is to have an efficiency of 80 per cent, 20 per cent of the total flux emitted by the lamp may be lost. The lamp emits 2,046 lumens. Therefore, 409 lumens may be lost in the basin.

A good, dense opal glass, with polished surface, will reflect about 70 per cent of the incident light. In this case, since say 65 per cent of the total lumens emitted by the lamp, or 1,227 lumens, is received on the glass, the number of lumens emitted by the basin, which is say, 7.5 square feet in area (65 per cent of the total area of a sphere 1 foot in radius), is 7.5 square feet times 28.8 foot-candles, or 216 lumens. And this is 216/409 or nearly 50 per cent of the lumens admitted into the glass. The glass must therefore show about 50 per cent absorption, which corresponds to a fairly heavy optical density, particularly if the glass is to be single thick so as to avoid undue weight.

However, since the basin, under these conditions and with a fairly bright ceiling above, may be smaller and correspondingly brighter, a basin of this density equivalent to a hemisphere 14 inches in diameter will answer the purpose.

At this point, recall the size and brightness of such basins frequently used, with even larger lamps, in rooms with comparatively dark ceilings—effectual causes of headache and indigestion! Think this over.

Some **Indirect** and **Semi-indirect Fixtures** made by The Duplex Lighting Works of the General Electric Co., are described on p. xiii of the **Industrial Section;** and as made by I. P. Frink, Inc., on p. xxi. See, also, the Diffuselite Co., p. iv.

Treatment of Reflecting Surfaces

It will be seen, from the above calculations of the number of lumens required to light the given room, how important is the question of the reflection factor of the interior surfaces. Since all but a comparatively small portion of the light emitted by lamps is initially received on the ceiling, any reduction of the reflection factor of the ceiling means a corresponding increase in the number of lumens that the lamps must emit. A change in this reflection factor from 50 per cent, which is the reflection factor of a light buff lead and oil, to 70 per cent, which is the reflection factor of fresh white lead, means an increase in illumination on the working surface in the room of nearly 50 per cent, if the treatment of the wall-surface shows a reflection factor not less than 50 per cent. In one office, rekalsoming the ceiling, leaving the walls as they were, with a comparatively low reflection factor, increased the illumination on desks 30 per cent. It is not too much to say that the selection of the wall and ceiling coatings is more important than the selection of any particular type of reflector equipment on the lamp.

With *direct* illumination, that is, with reflectors open and pointing downward, and the lamps fairly close to the

ceiling, then, under normal conditions, the amount of light received on the working areas from the walls and ceiling is between 30 and 40 per cent of the total received. This percentage is increased to about 85 per cent with the normal semi-indirect method of lighting, and reaches 100 per cent with indirect lighting.

Diminution of Reflective Capacity

It has been found that lead-and-oil coatings lose their reflection factor quite rapidly—about 15 per cent a year, independently of dirt accumulations—due entirely to chemical changes in the paint. In the case of kalsomines, and similar paints, the loss in reflection factor is about the same as with lead and oil, but due to the absorption of dirt into the porous paint. It is, therefore, a decided economy to use paints which contain no lead and little oil. It is possible to produce a paint of this type which maintains a practically constant reflection factor and which can be readily cleaned. The cleaning will restore the reflection factor almost to its initial value.

Tinting

Where tinting is considered necessary, it should be remembered that lamp-black has an exceedingly low reflection factor, so that even a small portion of it mixed into the paint will reduce the reflection factor of the paint materially. If tinting is essential, it should be obtained in other ways than by the use of lamp-black. For instance, a series of greys can be obtained by mixing various red and blue pigments and thinning them out with white. Such greys have a lively appearance and lack the dead quality of the grey obtained by the use of lamp-black. They also have a considerably higher reflection factor than similar tints obtained with lamp-black.

Painting

This question of painting is obviously one that should receive the most careful attention of every architect when specifying the interior finishes in buildings used for commercial purposes, and where the cost of operation is a material factor.

In one very large office building, the suggested change from light buff-tinted ceilings and dark buff-tinted walls to the kind of treatment suggested above would have saved in energy consumption for lighting about $14,000 a year. Under these conditions it would obviously pay to use a paint that can be thoroughly cleaned without injury and to pay the cost of the cleaning at least once every six months. There is hardly any necessity for mentioning the fact that similar economy can be brought about by frequent cleaning of the lighting fixtures. Even the so-called dust-proof enclosed fixtures require cleaning if their efficiency is to be maintained.

For additional data on **Reflecting Surfaces**, see **Industrial Section**, Edison Lamp Works, pp. xiv-xix, Diffuselite Co., p. iv, and J. G. Wilson Corp., p. xx.

It is also obvious that if interiors are treated as above suggested and the windows are equipped with light-directing blinds, so that the maximum daylight intensity is thrown upon the ceiling, a minimum amount of daylight need be used, and this suggests the possibility of reducing the size of the windows, permitting better exterior appearance of the building—all of which is entirely aside from the question of ensuing physical comfort of the occupants, which has been previously mentioned and discussed.

While the above example deals particularly with the lighting of an office, the principles illustrated in this example are fundamental in all systems of lighting for every purpose, and while they must necessarily be modified to meet less utilitarian conditions, they must always be kept in mind, otherwise the character of the building or room will not be suited for the use intended.

Daylighting

While much of what has been said above is applicable to daylighting as well as artificial lighting, there are a few matters relating particularly to daylighting which deserve mention. It has been said above that the amount of daylight admitted by any aperture is solely a function of the sky-area or area of other brightly lighted surface that can be seen from it. If the daylight cannot obtain access to the window, the window as a lighting source is useless.

It is therefore obvious that, in the architectural design of every building, proper precautions should be taken to make certain that the required amount of daylight will find access to windows or other lighting apertures, as otherwise artificial light will have to be used with the corresponding increase in cost of operation.

It is a common thing to see courts and light-wells so designed and treated that daylight has little or no opportunity to find its way to the windows opening onto these courts or wells. It is a common thing to see designs for elevations of buildings represented with daylight upon them in a manner that will never occur when the building is built. It would seem that, since a building, particularly commercial structures, must be adequately lighted if they are to function properly, their design should be based on the daylight available and the most made of it.

This matter has gradually risen to such importance that we find city laws and state laws making more or less unscientific efforts to correct the difficulties, and the architect is compelled to make his design conform to such laws. Should not the architect himself be the one to take the initiative and to learn at least a little about daylight and how it can be handled?

The subject is entirely too broad and complicated to discuss in detail in an article such as this, but a considerable amount of data has been collected and is available for the architect's use.

For data on **Glass**, see Mississippi Wire Glass Co., **Industrial Section**, p. xxviii. For **Daylighting Devices**, see **Industrial Section**, J. G. Wilson Corp., p. xx, and the Diffuselite Co., p. iv.

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THE BUILDING MATERIAL DEALER THEIR CONTRIBUTION

THE engines of war are silenced; the smoke of battle has cleared away. The period of reconstruction is here.

To those who fought, suffered, and won, all glory is due—now and always.

But let us not forget others who have done their share quietly, patiently, and unselfishly.

The walls of civilization were shattered, and through the breach came a devastating torrent of frightfulness. To stem this flood, into the gap the nation unselfishly threw its all.

The desired result was achieved; the fabric of civilization was again made whole. And all who helped gained sufficient reward in the knowledge of a great work well done.

All credit to whom credit is due. No one class suffered more acutely,

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